

Dublin	<u>Pulaski County High School</u> Moses, Brooks (17) Route 1, Box 78, Newport 24128 <i>Aerodynamic Modifications to Railroad Hopper Cars</i>
Edinburg	<u>Valley Baptist Christian School</u> Salyards II, Joseph Paul (18) Route 1, Box 302 D, New Market 22844 <i>Bioremediation System for Landfill Leachate: Original Design, Optimization, and Design</i>
Radford	<u>Radford High School</u> Kastning III, Ernst H. (17) P.O. Box 1048 24141 <i>Evolution of a Karstic Groundwater System, Cave Hill, Augusta County, Virginia: Multidisciplinary Study</i>
Yorktown	<u>Tabb High School</u> Niczyporuk, Janusz Michael (18) 113 Camelot Crescent 23693 <i>Determination of Speed of Light in a Vacuum</i>
<u>WASHINGTON</u> Bellingham	<u>Sehome High School</u> Hung, Shine May (16) 704 - 12th Street 98225-6211 <i>Method Development of Induced Resistance to Anthracnose in Alfalfa Cotyledons</i>
Bothell	<u>Bothell Senior High School</u> Passey, Aaron James (18) 23212 53rd Avenue, S.E. 98021 <i>Pitch Acceleration in Model Airplanes as it Relates to Wing Spar Strength</i>
Tacoma	<u>Bellarmino Preparatory School</u> Loraas, Emily Louise (18) 5506 79th Avenue Ct. West 98467 <i>Design and Construction of Retroviral Gene Transfer Vector Suitable for Treatment of Rhabdomyosarcoma Cancers</i>
<u>WEST VIRGINIA</u> Charleston	<u>Capital High School</u> Thornton, Brett Franklin (17) 1 Church Road, Elkview 25071 <i>Study of Effectiveness of Interactive Media Presentations for Purpose of Improving High School Students' Information Retention</i>
<u>WISCONSIN</u> Glendale	<u>Nicolet High School</u> Mollick, Ethan Reuben (18) 225 E. Ravine Baye Road, Bayside 53217 <i>Variable Coordination of Denisyuk Holograms</i>
Platteville	<u>Platteville High School</u> Grice, Matt Britten (17) 321 County Highway B 53818 <i>Investigation of Primary Diffusive Resistance in Stratum Corneum Using Liposome Model</i>
Racine	<u>Washington Park High School</u> Merlo, Xanthi M. (17) 3025 Spring St. 53405 <i>Effect of Protein Z on Factor X₂, Initiated Blood Coagulation</i>
<u>WYOMING</u> Casper	<u>Natrona County High School</u> Chamberlain, Stormy Jo (17) 6055 Raderville Rt. 82604 <i>Binding of Aspirin and Dicarboxylic Acids to Serum Albumin</i>
<u>PUERTO RICO</u> Rio Piedras	<u>University Gardens High School</u> Carrero-Martinez, Franklin Alexander (17) 58 S.E. #1281 La Riviera, San Juan 00921 <i>Use of Entomopathogenic Nematode <i>Steinernema carpocapsae</i> as a Potential Biological Control for the American Cockroach <i>Periplaneta americana</i></i> Robles, Liza D. (17) 3rd Street, A-31 Metropolis, Carolina 00987 <i>Phytochemical Analysis of Insecticidal Properties of the <i>Hymenaea cuorbaril</i> Leaf</i>

FOR USE TUESDAY, JANUARY 19, 1993

THE 52ND ANNUAL
STS

 SCIENCE
 TALENT
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WESTINGHOUSE
 SCIENCE
 SCHOLARSHIPS

1993
 SEMIFINALISTS

Administered by SCIENCE SERVICE
 1719 N Street N.W., Washington, D.C. 20036
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SCIENCE TALENT SEARCH

The Science Talent Search was the pioneering endeavor to discover and encourage high school seniors with the ability to be tomorrow's outstanding scientists and engineers. It has succeeded far beyond the hopes of its founders.

Aided over the years by millions of dollars in Westinghouse scholarships and similar aid from educational institutions eager to have such talented students, many of those discovered by the Search have gone on to distinguished careers. Many have received major recognition, including five who have won Nobel prizes.

The Search itself has become an institution, a prestigious tradition widely approved and supported by the academic community.

Westinghouse Electric Corporation has made a notable contribution to the advancement of science in America by financing the Science Talent Search through the 52 years of its existence.

Science Service, dedicated to advancing the public understanding of science on a broad front, is proud to administer the annual Science Talent Search. Educators, scientists, engineers and journalists across America have enthusiastically cooperated in this annual activity which is the pinnacle event for high school seniors interested in science and engineering.

1993 SEMIFINALISTS

The achieving of semifinalist status in the Science Talent Search is evidence of ability and interest in science and engineering which is taken into consideration by colleges and universities in admissions and granting of scholarships. For this reason this semifinalist list is distributed to all universities and colleges in the United States. Each of those selected as a semifinalist is being furnished with multiple certifications intended to accompany applications for college admissions and for scholarships, but a listing in this pamphlet should be accepted as an equivalent certificate. Listed are 128 females and 172 males.

From this group of 300 semifinalists, 40 students are chosen as finalists for the Washington trip (March 4-8, 1993) where \$205,000 in scholarships will be announced. The finalists are announced after the distribution of this list and their names will be published in SCIENCE NEWS of January 30, 1993. A copy will be sent upon request.

THIS LISTING IS ORGANIZED BY THE HIGH SCHOOL THE SEMIFINALIST ATTENDS. THE STUDENT'S NAME, AGE, HOME ADDRESS AND PROJECT TITLE FOLLOW.

ALABAMA Birmingham

Resource Learning Center

- Daram, Parvati Devi (17) 123 River Haven Circle, Hoover 35244
Do Certain Mutations in Cystic Fibrosis Gene Product Affect Adenosine Triphosphate Binding?
 Hedrick, Jennifer Leigh (17) 8713 Highway 79, Pinson 35126-2549 *Visual vs. Verbal Learning Deficits in Right vs. Left Hemisphere Strokes*
 Ricketson, Bradford Daniel (17) 1165 Alford Avenue 35226 *Preliminary Research Into Possibility of Catalytic Polysaccharides*

- Mobile Alabama School of Mathematics and Science
 Heaton, Brian Craig (17) 1117 Belleville Avenue, Brewton 36426
Solar-Driven Photocatalytic Detoxification of Organic Contaminants in Water
- Vestavia Hills Vestavia Hills High School
 Tehranchi, Michael Rummine (17) 3212 Altaloma Dr. 35216
On Parabolic Functions and Their Applications
- ALASKA
 Anchorage Robert Service High School
 Kumar, Mina Cerny (16) 12820 Cumberland Circle 99516
Selective Predation of Dragonfly Nymphs and Chaoborus Larva on Pond Zooplankton
- ARIZONA
 Phoenix Central High School
 Swaine, Shauna Michelle (18) 6735 N. 10th Place 85014
Production and Regulation of Matrix Degrading Enzymes by Human Malignant Glioma Cells
- ARKANSAS
 Little Rock Central High School
 Sung, Jade Jye (17) 204 Hickory Creek Lane 72212
Inhibitors of Angiogenesis
- CALIFORNIA
 Alhambra Alhambra High School
 Tran, Lynn Uyen (17) 217 S. Hidalgo Ave. 91801 *Reproductive Biology of a Deep-Sea Brittlestar, Amphiura carchara*
- Chula Vista Chula Vista Senior High School
 Le, Phuc Thi Ngoc (18) 545 Woodlawn Avenue, #37 91910 *Insecticide and Herbicide-Induced Alterations in Retroviral Transforming Gene Expression*
- Fremont Mission San Jose High School
 Lee, George C. (18) 679 Olive Avenue 94539
Bioremediation: Microbial Degradation of Hydrocarbons on California Coast and Its Effects on Marine Ecosystems
- Fresno Edison High School
 Huff, Jenny Kathryn (18) 1637 West Morris 93711 *Optimum Levels of Chitosan in Removal of Casein from Water Suspensions*
- La Jolla La Jolla High School
 Chen, Constance Lee (17) 6219 Buisson Street, San Diego 92122
Maturation, Tumorigenicity, and Gene Expression - LOV and PEM
 Lin, Janet Yon-jung (16) 7836 Bellakaren Place 92037-3511 *Inhibition of Agrobacterium-Induced Tumorous Galls by Allium sativum (Garlic)*
- Los Angeles Bravo Medical Magnet High School
 Tran, Ngoc Le (17) 2220 Duvall Street 90031
Expression of Mouse Enamel Proteins in Bacteria
- Eagle Rock High School
 Inman, Claudia Elaine (17) 829 Elyria Dr. 90065
Energy Transitions in Doubly Doped Neodymium and Erbium YAG Crystals Mediated by Low Energy Transitions
- North Hollywood North Hollywood High School
 Hemmati, Houman David (16) 4255 Bonavita Place, Encino 91436
Accessibility of Enzyme DNA Methyltransferase to Nuclear Matrix of Halo DNA of Rat Liver
- Ridgecrest Sherman E. Burroughs High School
 Gutmark, Julie G. (16) 602 Rio Bravo Street 93555
New Diagnostic Technique of Visual Disorders Using Eye Dynamics
 Harris, Douglas Jeffrey (17) 1112 Evelyn Ct. 93555
A Funny Thing Happened on the Way to Sillyballs
- Upland Upland High School
 Hsu, Charles Shih-Hsuan (17) 698 West 24th Street 91786 *Lipoxygenase Influence on Lipofuscin-Like Aging Pigments in Bananas: Biochemistry of Aging*
- COLORADO
 Boulder Fairview High School
 Mahanthappa, Mahesh Kalyana (16) 2865 Darley Avenue 80303-6307 *On the Diophantine Equation $x^m + D = g^n$*
- Fort Collins Fort Collins High School
 Veeramachaneni, Nirmal Kumar (17) 500 W. Prospect, Apt. 8G 80526
Localization of Gene Encoding Actin-Depolymerizing Factor in the Human

CONNECTICUT

- Southington
Southington High School
 Metzler, Stacy Elizabeth (17) 18 Roaring Brook Drive 06489
Screening of Escherichia coli for Measles M₁ Gene
- Stamford
Stamford High School
 Duchin, Moon (17) 171 Blackberry Drive 06903
Applications of Minkowski's Theorem to Classical Number Theory

FLORIDA

- Fl. Lauderdale
Nova High School
 Greenbaum, Benjamin Dylan (17) 1531B N.W. 80 Ave., Margate 33063
Evaluation of the Magnetic Fields Generated by YBa₂Cu₃O_{7-x} and Bi_{1.8}Pb_{0.2}Sr₂Ca₂Cu₃O₈ Superconductors
- Miami
Miami Palmetto Senior High School
 Comander, Jason Ian (17) 13250 S.W. 74th Avenue 33156
Shifts of Tonic Accommodation After Near Work, and Accommodative Response Function
- Niceville
Niceville Senior High School
 Lessard, John Patrick (17) 813 Valparaiso Blvd. 32578
Effects of Gallium-Doping on the (In_xPb_{0.75x}Cu_{0.25})Sr₂(Ca_{0.5}Y_{0.5})Cu₂O Superconducting System
- North Miami Beach
Hillel Community Day School
 Kenigsberg, David Noah (17) 520 Holiday Drive, Hallandale 33009
Degradation of Cardiac Myofibril Proteins by Calpain II: High Calcium-Dependent Protease
 Klahr, Darin Jason (17) 1233 Biscaya Drive, Surfside 33154
Syphilis in Inner City Pregnant Young Women
 Lisitzky, Sharon Ann (17) 1361 N.E. 172nd Street 33162
Detection of Activated Platelets Using Anti-Thrombospondin and Flow Cytometry
 Perez, David (17) 1911 N.E. 187th Drive 33179
Interferon-gamma Production by Spleen Cells Early Following MHC-Matched and Non-MHC-Mismatched Bone Marrow Transplantation in Mice
- Orlando
William R. Boone High School
 Chapiro, Christopher James (17) 3330 Kew Gardens Lane 32812-6684 IR,
 UV, and Visible Spectra of PAHs: Application to Perylene
- Pensacola
Pensacola High School
 Harrison, Brian Michael (17) 4200 Danamar Drive 32504
Effects of Varying the Conductance of Fluid in Magnetohydrodynamic Propulsion System
 King, Hadley Claire (17) 1911 Whaley Ave. 32503
Effects of Age, Gender, and Vocation on Appreciation of Humor in Captioned Cartoons
 Nguyen, Ha Van (16) 610 Edgewater Dr. 32507
Two-Dimensional Study on Factors Influencing Spatial Perception Abilities Among Males and Females
- Pompano Beach
Ely High School
 Fazio, Jacqueline Renee (17) 3860 NE 24th Avenue, Lighthouse Point 33064
Effects of Low Electromagnetic Fields on Gene Expression in the Yeast Saccharomyces cerevisiae
- Satellite Beach
Satellite High School
 Dhople, Anil Arvind (16) P.O. Box 372274 32937-0274
In vitro Activity of Allium sativum on Bacterial and Mammalian Cells
- Sunrise
Piper High School
 Hagendorf, Benjamin Ari (17) 8310 N.W. 48th Street, Lauderhill 33351
Effects of Cover Crop (Vetch and Lupine) Tillage and Nitrogen on Corn Ear Leaf Area, Weight, and Micro-Kjeldahl Analyzed Nitrogen Concentration as a Potential Indicator of Corn Crop Yield
- Tampa
Chamberlain High School
 Provenzano, Paige Elizabeth (18) 7811 River Shore Drive 33604
Stripping Effects of Carbon Dioxide on Dissolved Oxygen Levels in Sea Water: Five-Year Study
- GEORGIA**
- Atlanta
Lakeside High School
 Bullard, Jennifer Cheryl (17) 2357 Burnt Creek Road, Decatur 30033
Isolation and Characterization of a Cytotoxin in Haemophilus ducreyi
- HAWAII**
- Honolulu
Moanalua High School
 Howarth, Dianella Gwen (17) 1558 Monte Street 96819
Evolution of Native Shrubs in the Genus Scaevola (Goodeniaceae) in the Hawaiian Islands
Punahou School
 Itagaki, Michael Ward (18) 2326 Armstrong Street 96822
Synthesis of alpha,3-Dehydrotoluene Precursors for Anticancer Applications

IDAHO

Moscow

- Moscow Senior High School
 Pall, Zachary Aaron (18) 304 East A Street 83843
Ichthyosaur Vertebral Column: An Evolutionary Analysis

ILLINOIS

Aurora

- Illinois Math & Science Academy
 Lal, Sonia (17) 21 East Opal Avenue, Glendale Heights 60139
Ameliorating Effects of Rhodotorulic Acid on Heavy Metal Toxicity Affecting the Smut Fungus Ustilago violacea
 Pine, Elizabeth Michele (17) 6936 S. Bennett Ave., Chicago 60649
Clarifying Evolutionary Relationships Between and Within Two Major Groups of Basidiomyceteous Fungi (Mushrooms and False-Truffles) by Means of rDNA Sequencing

Chicago

- University of Chicago Lab High School
 Chen, Charlie H. (18) 2810 Virginia Ln., Glenview 60025
On the Formation of Bile Pigments Related to Uroporphyrins I and III by Extracts of Clostridium tetanomorphum
 Ho, Jason Yan-Dah (17) 175 E. Delaware #5023 60611
Copper/Captopril and Its Effects on Brain Tumor Growth
 Tam, Raymond Chung-Man (17) 941 Weatherbee Avenue, Downers Grove 60516
Isolation of the nifH Promoter in Anabaena
 Tripathi, Paul C. (18) 155 N. Harbor Drive 60601
Corticosteroids Induce Aberrant Glycoprotein That is Implicated in Pathogenesis of Glaucoma

Downers Grove

- Downers Grove South High School
 Miao, Katharine Hsin (17) 5239 Fairmount Avenue 60515
Evidence That the Short Form of the Chemotaxis-Associated Kinase, CHEA_s, is a Phospho-Chey Phosphatase

Evanston

- Evanston Township High School
 Price, Matthew Eben (17) 814 Sheridan Rd. 60202
Influence of Arching and Inter-Particle Friction on Phenomenon of Self-Organized Criticality

Glen Ellyn

- Glenbard West High School
 Flint, Janna Kirsten (18) 1828 Wilmette Court, Wheaton 60187
Development and Improvement of an Epoxy Scintillator

Northbrook

- Glenbrook North High School
 Hsu, Karen Chien (17) 202 Constance Lane 60062
Effect of Anions on Photoexcitation Cascade

Oak Park

- Oak Park & River Forest High School
 Tan, Chen (17) 301 Chicago Ave. 60302

Wheaton

- Wheaton North High School
 Pun, Patrick Hank (17) ON 727 Peter Road 60187
Nature of Regulatory Mutation in the catBC Operon of Pseudomonas putida PRS2200/pKRZ-BC

Winnetka

- New Trier Township High School
 Lin, Mary Uan-Sian (17) 235 Kilpatrick Avenue, Wilmette 60091
Purification and Analysis of Bacterial Heat Shock Protein dnaK, Which Plays Essential Role in Cell Survival

INDIANA

Ellettsville

- Edgewood High School
 Zawistoski, Ann Nicole (17) 400 Kelli Drive 47429
Ancient Tidal Cycles Found in Hindostan Whetstone Beds (Pennsylvanian), Orange County, Indiana

Muncie

- Indiana Academy for Science, Math and Humanities
 Doerner, Michael Anthony (18) Box 183, Wagoner Hall 47306
Experimental Study of Relationship Between Energy and Temperature in Nuclear Matter
 Michael, Alexis Laura (17) Wagoner Hall - BSU, Box 107 47306
Development of Large Area CsI(Tl) Detector for Nuclear Physics Experiments

IOWA

Stuart

- Stuart-Menlo Community School
 Wilhelm, Karin Hope (18) 403 North Harrison 50250
Determination and Removal of Trihalomethanes in Drinking Water

KANSAS

Prairie Village

- Shawnee Mission East High School
 Kamath, Ravi Shanker (16) 8306 W. 98th Terrace, Overland Park 66212-3498
Characterization and Analysis of a Ricin B-Chain Galactose-Binding Mutant Through a Bacteriophage Display System

Wichita Wichita High School Southeast
Flatt, Brian Joshua (17) 2541 Plumthicket Court 67226 *Statistical Analysis of X-Ray and Radio Emissions in RS CVn Active Binaries*

KENTUCKY
Lexington Henry Clay High School
Hastings, Jeffrey Todd (17) 609 Centennial Lane 40502
High- T_c Superconducting Monopole Antenna From Bulk YBaCuO Material

Louisville Ballard High School
Chakraborty, Sayantani (17) 5901 Hickman Ct. 40207
A Pulsating Chemical Switch

LOUISIANA
Baton Rouge Baton Rouge Senior High School
Iyengar, Puneeth (17) 1518 Chippenham Drive 70808
*Applications of UMV Assay in Measuring the Effects of Rat and *Mytilus edulis* Enzymatic Proteins on 4NQO and Nitrofurantoin Mutagenicity*

Ruston Ruston High School
Saxena, Mukund (17) 2206 Azalea Dr. 71270
Synthesis of Dinitrogen Complexes of Molybdenum

MARYLAND
Baltimore Gilman School
Ginsberg, Michael Elliott (18) 6533 Gardenwick Road 21209 *Modulation of Optokinetic Nystagmus by Vestibular and Optokinetic Information*

Bethesda Walt Whitman High School
Doran, Brent Richard (16) 8544 Brickyard Road, Potomac 20854
Discrete Matrix Representation and Invariant Computation for Knot and Link Diagrams with an Explicit Solution of the (K,L,O)-existence Problem
Liu, Mian-Lai (17) 8636 Melwood Rd. 20817
Regulation of Immunoreactivity in 293 Cells Transfected Mutant Amyloid Precursor Protein (APP)

Columbia Atholton High School
Epstein, Lee Brandon (18) 10359 Currycomb Court 21044
*Isolation and Identification of Allelochemicals Released by *Lobophytum crassum**
Townsend, Bryan Robert (17) 7137 Deer Valley Rd., Highland 20777
Synthesis of Silica Aerogels via Sol-Gel Process

Ellicott City Centennial High School
Lewis, Mark Steven (16) 4612 Oakview Court 21042
Magnetic Properties of Rare Earth Compounds

Greenbelt Eleanor Roosevelt High School
Luu, Kieu Xuan (17) 6414 49th Avenue, Riverdale 20737-1162
Temporal Changes in Elongation and Proteolytic Enzyme Activity in Axis of Germinating Cotton Seeds
Rice, Paul M. (18) 4804 Riverton Lane, Bowie 20715
*Determination of Acetylcholine Esterase Activity in Developmental Stages of *Musca domestica* in Relation to *in vivo* LD 50 Values for Diazinon*
Wang, Ken Sandor (17) 4411 West Caroline Ave., Beltsville 20705
Enhancement of Omega-3 Fatty Acid Production and Prevention of UV Damage in Algae

Rockville Thomas Sprigg Wootton High School
Maheshwari, Shailendra (17) 13540 Potomac Riding Lane 20850
Enhancement of Endothelial Cell Adhesion and Organization by Estradiol

Silver Spring Montgomery Blair High School
Chien, Steve Shaw-Tang (17) 9431 Sunnyfield Court, Potomac 20854
Multi-Dimensional Extension of Wythoff's Game
Davidson, Beth Baskin (17) 1501 Dublin Dr. 20902
Effects of Monoclonal Antibody BDI on Histamine Release in Rat Basophilic Leukemia Cells
Huang, Wei-Hwa (17) 11813 Riding Loop Terr., North Potomac 20878
The Peg Solitaire Army
Mann, Elizabeth Dexter (17) 110 Dale Drive 20910
Parallel Implementation of the Wavelet Transform
Shukla, Sudheer Poornachandra (16) 14429 Twig Road 20905
On Ramanujan's Highly Composite Numbers
Weitz, Joshua Stephen (17) 3708 Calvend Lane, Kensington 20895
Computational Dynamics of Mass Transfer Binary Star System
Yang, Kamie Kai-Li (17) 7 Henley Court, Rockville 20850
Gene Expression of Enzymes in Eicosanoid Synthesis in Diabetic Kidneys

MASSACHUSETTS
Holden Wachusett Regional High School
Richardson, Stephen Scott (18) 7 Boynton Parkway, Paxton 01612
Design, Implementation and Application of a Robotic Arm

Lexington Lexington High School
Banerjee, Sishendu Roopom (16) 67 Ward St. 02173 *Polymerase Chain Reaction: Today's Technology for Tomorrow's Applications*
Sung, Michael (17) 27 Deering Avenue 02173
Predicting Bulk Modulus of Diamond-Like Semiconductors

MICHIGAN
Birmingham Detroit Country Day School
Shenkman, Heather Joy (17) 30253 Ravenscroft, Farmington 48331
*Screening of *Escherichia coli* for Measles M₁ Gene*

Detroit Cass Technical High School
Tewari, Asheesh (15) 14955 E. State Fair 48205
In situ Dephosphorylation of p53 Protein by Call Intestinal Alkaline Phosphatase Treatment

Holt Holt High School
Roehl, Susan Elizabeth (17) 3823 Willoughby Rd. 48842
Random Mutagenesis of Transcriptional Activation Domain of Virion Protein 16 from Herpes Simplex Virus Type 1

Mt. Clemens L'Anse Creuse High School
Mason, Rebecca Andromache (17) 29579 Riverside Bay Ct., Harrison Township 48045 *Effect of Variances in Roll Moment of Inertia on Sailboat Stability*

Northville Northville High School
Kniebes, Emily Susan (17) 20568 Woodbend Drive 48167
Effect of Prior Exposure on Perception of an Optical Illusion as Function of Age and Gender
Parikh, Parag Jitendra (17) 42377 Waterfall 48167
Teacher/Middle School Student Interactions in Mathematics as Function of Gender

Okemos Okemos High School
Noble, Scott Charles (17) 5357 Wild Oak, East Lansing 48823 *Angular Correlation Study of Nuclear Fragmentation in Heavy Ion Collisions*

Portage Portage Central High School
Taraszka, John Anthony (18) 410 Marylynn Court 49002 *Fractal Analysis of Electrochemical Deposits of Copper*

MINNESOTA
Aitkin Aitkin High School
Johnson, Mark Alan (17) Route 2, Box 86 56431
Quantitative Analysis to Simulate Water Level Fluctuations of Small Lakes

Apple Valley Apple Valley High School
Barnum, Christopher Michael (17) 15008 1st Ave., South, Burnsville 55337
Sun Bear Behavioral Patterns at the Minnesota Zoo

Minneapolis Spring Lake Park Senior High School
Sukhatme, Mayukh Vasant (17) 426 Oak Creek Court, Vadnais Heights 55127-7004 *Structural, Biochemical, and Molecular Comparisons of Nitrogen-Fixing and Non-Nitrogen-Fixing Alfalfa (*Medicago sativa* L.) Root Nodules*

Plymouth Wayzata Senior High School
Egeland, Ryan David (18) 16505 Birch Briar Trail 55447 *Survival and Levels of Protein, Carbohydrate, and ATP in *Daphnia magna* During Chronic Exposure to Sodium Chloride Pollution: Six-Year Environmental Study*

St. Paul Cretin-Derham Hall
Johnson, Adrian Konrad (18) 554 Montrose Lane 55116
Characteristics of Xenon Flashlamp in Fast-Pulsed Mode

Winona Winona Senior High School
Shortridge, Nathaniel Snowbear (17) 677 Main St. 55987 *Detection and Functional Characterization of Phytochrome in Fern Type *Pteridium aquilinum* L. Determined by Immunoblotting and Physiological Responses*

MISSISSIPPI
Jackson Saint Andrew's Episcopal School
Friedman, Judah David (17) 216 Fox Hollow Place, Madison 39110
Development and Testing of Model System Using Bacterial Ribonuclease H to Simulate Homologous Human Immunodeficiency Virus Enzyme

Long Beach Long Beach Senior High School
Nazareian, Robin Nanette (18) P.O. Box 724 39560 *Do Orange Oil and *Reticulitermes flavipes* (Isoptera: Rhinotermitidae) Mix? Six-Year Study*

MISSOURI
Ballwin Parkway West High School
Kharbanda, Dave Singh (17) 2003 Grecian Way Court, Town and Country 63131 *Time-Gain Adjustment of Logarithmically Compressed Image Data: Refinement of Ultrasound Images Used in Neurosurgery*

MONTANA
Sidney

Sidney High School
Johnson, Colleen Bea (17) HCR 89, Box 5228 59270-9218
Dye Diffusion Through Titanium Dioxide Dispersions

NEW HAMPSHIRE
Exeter

Phillips Exeter Academy
Lee, Pang (17) 42 Eldridge St., #8, New York, NY 10002 *Role of the lines Gene on the Cell Fate of Drosophila Epidermal Cells*
Lee, Suzee Eurie (17) 526 Sheridan Circle, Charleston, WV 25314
Fractal Dimensional Analysis of Non-Flagellated Bacterial Colonies
Ngai, Joseph Luc (18) PEA 768, Phillips Exeter Academy 03833
High-Precision Laser Speckle Tracking Technique for Measuring Angular Dynamics: Fiber-Optic Cross Correlation
Padwa, Gideon Ash (17) Box 1988, Santa Fe, NM 87501
Fractal Galaxy Distribution in the Evolving Universe

NEW JERSEY
Glen Gardner

Voorhees High School
Knowles, Kimberly Ann (17) 12 Pruner Farm Road, Lebanon 08833
Differences in Response of Omnidirectional and Close-Talking Microphones

Martinsville

Pingry School
Chiu, Kuenley (17) 305 Woods End Rd., Westfield 07090-2907
Monte Carlo Simulations of Photon Flight Through Diffusive Materials

Millburn

Millburn High School
Gerson, Richard Matthew (17) 55 Tennyson Dr., Short Hills 07078
Optimism as Predictor of Academic Success

Montclair

Montclair Kimberley Academy
Capriano, Laura Christine (18) 91 Fairview Avenue, West Orange 07052
Regulation of Acyl-CoA Synthetase mRNA by Insulin and Tumor Necrosis Factor Alpha in 3T3-L1 Murine Adipocytes: Studies of Signal Dominance

Washington

Warren Hills Regional Senior High School
Katstra, Wendy Ellen (18) 16 Turnbury Road 07882
Alterations of 1-2-3 Superconductors

NEW MEXICO

Moriarty

Moriarty High School
Thomas, Blake W. (17) P.O. Box 221, Edgewood 87015
Cepheid Pulsation: Spectroscopic Study, Phase IV

NEW YORK

Armonk

Byram Hills High School
Melkonian, Mark John (18) 61 Windmill Road 10504
Effects of Dislodgement Between Compatible Plasmids pBR322 and pDPT487 in Escherichia coli
Taur, Ying (17) 11 Finch Lane, Bedford 10506
Effects of RecA Function on Loss of Plasmids Due to Incompatibility

Bayside

Benjamin Cardozo High School
El Bash, Mohammed (17) 64-40 215 St. 11364 *Assimilation: Does It Affect Muslims' Attitudes Towards Their Jewish Counterparts?*
Francois, Edward H. (16) 89-14 209th Street, Queens Village 11427
Oreo Cookie Dilemma: Problems Facing African-American High and Low Achieving Students
Sahay, Neayka (17) 253-29 86th Avenue, Bellerose 11426
Mechanism of Nuclear Protein Accumulation
Wang, Tracy Yu Ping (17) 46-17 216th Street 11361
Analysis of N-CAM Isoforms During Endothelial to Mesenchymal Cell Transformation in the Developing Embryonic Heart

Bellmore

John F. Kennedy High School
Kupferman, Marni Joy (18) 2247 Farrell Court, Merrick 11566
Effect of Wound Healing on Malus domestica Borkh

W.C. Mepham Senior High School
Kamler, Michael Scott (17) 979 Bellmore Rd., North Bellmore 11710
Effects of Ascorbic Acid on Cadmium⁺², Chromium⁺³, and Copper⁺², and Toxicity of Ascorbic Acid

Bronx

Bronx High School of Science
Athan, Aurelie Maria (16) 21-31 Steinway Street, Astoria 11105
Interganglionic Interneurons Implicated in the Control of Feeding Behavior in Aplysia
Barenboim, Linda Irina (18) 35-15 84th Street, Jackson Heights 11372
Regulation of Phosphorylation and Dephosphorylation of a Dopamine Regulated Phosphoprotein in Striatal Neurons

Berger, Jennifer Anna (17) 528 West 111th Street, New York 10025
Freshman Adjustment to High School
Chang, Gloria MiMi (17) 180-20 Henley Road, Jamaica Estates 11432
Cross-Cultural Comparison of High School Students in the People's Republic of China and the United States
Chung, Jeffrey (18) 71-51 Kessel St., Forest Hills 11375
Alterations of Stalk of Influenza A Virus Neuraminidase by Deletions and Insertions
Falocchio, Lisa Emilie (17) 3 Greenway North, Forest Hills 11375
Friendship Patterns Among High School Students
Kassem, Iris Scarlett (17) 216-09 17th Ave., Bayside 11360
Specific Subtypes of Serotonin Receptor Mediate Stimulation of Colonic Myenteric Neurons by Increased Intraluminal Pressure: An in vitro Study Using Cytochrome Oxidase Histochemistry
Lee, Gloria (17) 57-23 254 Street, Little Neck 11362
Segregation of Deuterated Polystyrene-Poly Vinyl Pyradiene (dPS-PVP) Diblock Copolymers
Mehta, Kamini Mukundria (17) 112-16 68th Avenue, Forest Hills 11375
Subsets of CD4+ T Cells are Differentially Infected With HIV
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Patel, Bobby Darshan (17) 102-18 65th Rd., Forest Hills 11375
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Russo, Dana Theresa (17) 121-06 Keel Court, College Point 11356
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Ryu, Youngju (18) 2418 Delaney Avenue 10469 *Regulatory Protein Exchange as Novel Paradigm for Defining Molecular Basis of Heart Failure*
John F. Kennedy High School
Rogozhnikov, Dmitriy A. (17) 3971 Gouverneur 2E 10463
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Haig, Nadine Sophia (17) 639 Albany Ave., Apt. 4F 11203 *Mother-Child Bond in Japan Encourages the Japanese Children to Succeed More Academically Than Mother-Child Bond in U.S. Encourages U.S. Child*
Canarsie High School
Zysman, Allison Gayle (17) 105-31 Flatlands 5th Street 11236
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Erasmus Hall High School Academy of Arts
Clerisme, Emmanuelle Marie (17) 49 East 19th Street, Apt. 29 11226
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James Madison High School
Kwok, William (17) 2418 - 63rd Street 11204
Evolution of the prune Gene in Drosophila
Midwood High School at Brooklyn College
Blacksberg, Jason Andrew (17) 182 Amherst Street 11235 *Does Attending Religiously Oriented High School Alienate Students From Their Religion?*
Chin, Lynda (17) 1323 Foster Avenue 11230
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Ee, Pei-Lee (17) 7010 3rd Avenue 11209
Lectin Histochemical Study of Main Olfactory and Vomeronasal Systems of Developing and Adult Opossums, Monodelphis domestica
Eng, Andy Wai (17) 1443 E. 15 Street 11230
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Freyberg, Zachary Zisha (17) 2040 East 22nd Street 11229
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Leng, Thic (17) 1463 Ocean Ave., Apt. #2B 11230
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Lester, Paula Evelyn (17) 2355 East 16th Street 11229-4435
Novel Method of Estimating Human Cell Proliferation and Interphase Subdivision Using Human Genome Painting
Olenick, Simon Benjamin (17) 801 East 35 Street 11210
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Polias, Kathy Alisa (17) 1745 East 18th Street 11229 *Responses of Urban and Suburban Children to Violence in a Hypothetical Situation*

Brooklyn

	<p><u>Edward R. Murrow High School</u> Kim, Brian (17) 2218 Ocean Avenue 11229-2203 <i>Effect of Sexual Orientation on Self-Esteem and Coping Strategies in HIV-Positive Men</i> Rabichev, Inna (17) 849 E. 12th Street 11230 <i>Effects of Self-Esteem and Locus of Control on Students' Attitudes Toward and Success in Mastery Learning</i></p>		
	<p><u>New Utrecht High School</u> Qaum, Tamim (17) 2060 East 19th Street, Apartment 1-L 11229 <i>Academic Achievement and Self-Esteem as Correlated with Background Factors of Academic Ability and Socio-Economic Status</i></p>		
	<p><u>South Shore High School</u> Lee, Susana (17) 2330 Bergen Avenue 11234 <i>Effects of Transmission of Parental Attitudes Towards Smoking Among Adolescents</i> Loriso, Emily Frances (17) 1438 East 65th Street 11234 <i>Comparison Study of Attitudes of Urban Adolescents and Suburban Adolescents Towards Interracial Relationships</i></p>		
Buffalo	<p><u>Nichols School</u> Park, John Kee (17) 178 Viscount Drive, Williamsville 14221 <i>Inhibition and Co-crystallization of Cholesterol Esterase as an Enzyme-Inhibitor Complex</i></p>		
Cedarhurst	<p><u>Hebrew Academy of the Five Towns & Rockaway</u> Rapoport, Davida Alpert (17) 364 Island Avenue, Woodmere 11598 <i>Role of Macrophages in Central Nervous System of Rats With Experimental Autoimmune Encephalomyelitis</i></p>		
	<p><u>Lawrence High School</u> Reddy, Seema (17) 573 Barnard Avenue, Woodmere 11598 <i>Impact of Time Pressure on Social Science Testing</i></p>		
Commack	<p><u>Commack High School</u> Hoque, Romy (18) 158 Scarlett Drive 11725 <i>Solution of 3-D Euler for Flow About a Fighter Aircraft Configuration Using Hypercube Parallel</i> Kim, Suzanne Dong Eun (17) 85-07 Fairfield Way 11725 <i>Immunolocalization of Centrin in Four Unrelated Eukaryotes</i></p>		
Dewitt	<p><u>Manlius-Pebble Hill School</u> Reisinger, Derek Gunther (17) 6664 Newell Hill Road, La Fayette 13084 <i>Search for Gravitationally Microlensed Quasars: The Radio Approach</i></p>		
Elizabethtown	<p><u>Elizabethtown-Lewis Central School</u> Bartgis, Scott Edward (18) 1 Addison Road, Westport 12993 <i>Development of Ribonuclease Assay Using Ammonia Electrode</i></p>		
Flushing	<p><u>Townsend Harris High School/Queens College</u> Weiss, Donna Lin (17) 198-39 Pompeii Avenue, Holliswood 11423 <i>Exploration of the Third Dimension: Spatial Perception and Its Relation to Problem-Solving Ability</i></p>		
Forest Hills	<p><u>Forest Hills High School</u> Anastasian, George Ardashes (17) 82-90 61st Drive, Middle Village 11379 <i>Isolation and Analysis of Paired Gene Intron Expression in <i>Drosophila melanogaster</i></i> Lee, Insoo (18) 74-10 35 Ave. W608, Jackson Heights 11372 <i>Distribution of Protein Kinase C in Chemotactic Macrophages</i> Patel, Vrajesh (17) 111-07 66th Avenue Apt. 2A 11375 <i>Masking of MHC Class II Molecules Using Anti-MHC Class II Antibodies in Order to Prevent Experimental Allergic Encephalomyelitis (EAE)</i></p>		
Garden City	<p><u>Garden City Senior High School</u> Adamovich, Tara Lynn (17) 97 Somerset Avenue 11530 <i>Molecular Cloning of a Novel C1q Binding Cell Surface Protein</i> Uyguanco, Eric Ryan (17) 237 New Hyde Park Road 11530 <i>Relating Concentration of Ethanol in Package Atmosphere With Concentration Within Strawberry and Blueberry Fruit for Development of Smart Packaging</i></p>		
Great Neck	<p><u>Great Neck South High School</u> Gotta, Nancy Colleen (17) 29 Ascot Ridge 11021 <i>Density Correlations of Normal Liquids</i></p>		
Jamaica	<p><u>Hillcrest High School</u> Kumar, Kapil (17) 43-25 44 Street, Apt B4, Sunnyside 11104 <i>Suggestibility of Eyewitness Accounts</i></p> <p><u>Jamaica High School</u> Brijjall, Dwarkanauth (18) 90-42 180th Street 11432-5613 <i>Relationship Between General Reasoning Ability (GRA) and Depth Perception (DP) and Visual Illusion (VI)</i> Geer, Kamini (17) 92-70 219th Street, Queens Village 11428 <i>Role of Insulin-Like Growth Factor-I In Glomerular Hypertrophy and Glomerular Sclerosis In Remnant Rat Kidneys</i></p>		
		Lido Beach	<p><u>Long Beach Senior High School</u> Jimenez, Paola Andrea (17) 335 E. Market Street, Long Beach 11561 <i>Scanning Electron Microscopic Study of the Morphological Effects of Acid Rain on the Brook Trout (<i>Salvelinus fontinalis</i>)</i></p>
		Long Island City	<p><u>William C. Bryant High School</u> Kim, Yoo-Chin (18) 69-02 47th Avenue, Woodside 11377 <i>Students' Perception of American Identity: Roles of Citizen Status, Physical Appearance and Nationalism</i> Matias, Christine (17) 48-12 43 Ave., Sunnyside 11104 <i>Athletic Aggression: Perceived Legitimacy and Behavioral Intentions in Boys' High School Soccer</i> Santos, Anthony Recio (17) 30-47 85th St., Jackson Heights 11370 <i>Can America Cope With the World's Advancement in Technology?</i></p>
		Manhasset	<p><u>Manhasset Junior-Senior High School</u> Wang, Sunny (17) 20 Bristol Dr. 11030 <i>Evaluation of Placental Vascular Tissue Preparation Technique in Obtaining Endothelial Cells for Studies of EDRF Formation</i> Yoon, So Yeun (17) 120 Bayview Ave. 11030-1849 <i>Effect of Pyrophosphate on Coaggregation of Oral Bacteria</i></p>
		New Hyde Park	<p><u>Herricks Senior High School</u> Gupta, Srishli (16) 15 Hamilton Drive, Roslyn 11576-3103 <i>Amino-Terminus Histidine Tagged MutS Protein is Active <i>in vivo</i></i> Thakore, Avni Hasit (17) 18 Jeffrey Place 11040 <i>Gene Recombination Involved in Secondary Immune Response in B Cells</i></p>
		New York	<p><u>Hunter College High School</u> Chau, Lisa (17) 380 Rector Place, #2C 10280 <i>Evidence for Direct Actions of Cocaine on Gene Expression and Neurotransmitter Synthesis in the Central Nervous System</i></p> <p><u>La Guardia High School of Music and Art</u> Wang, Sheng-Ching (18) 200 West 70th Street, Apt. 2K 10023 <i>Phenotype of Resting and Activated B-1 Cells</i></p> <p><u>Ramaz School</u> Kushner, Amiad Moshe (17) 24 Dana Road, Monsey 10952 <i>Transpositional Mutations of <i>Bacillus subtilis</i> That Affect Chemiosmotic Systems</i></p> <p><u>Stuyvesant High School</u> Aheto, Eli Kodzo (17) 1020 Grand Concourse #8E, Bronx 10451 <i>Deindividuation, Self-Consciousness, Social Anxiety and Their Relationship to Locus of Control</i> Bade, Jr., John Joachim (17) 49 E. 96th St., Apt. 5B 10128 <i>In vitro Inhibition of Lipid Peroxidation by Catechol Compounds</i> Bahk, Michelle Myung Hwa (17) 33-54 171 Street, Flushing 11358 <i>Perceptual Closure Hypothesis</i> Chan, Susana (17) 20 Confucius Plaza #43L 10002 <i>Supercoiling Influenced by HU Protein</i> Chandy, Joby Joseph (17) 83-30 Smedley Street, Briarwood 11435 <i>Ultrastructural Distribution of Cholecystokinin-Like Immunoreactivity in Dentate Gyrus of Hippocampal Formation of Rat Brain: Localization in Mossy Fiber Terminals</i> Chang, Kit (17) 402 E. 90 St., Apt. 6C 10128 <i>Determination of Synergism in Drug Combinations Against SK-BR-3 Human Breast Tumor Cells <i>in vitro</i></i> Cheng, Simon (17) 47-43 39th Street, Sunnyside 11104 <i>Immunohistochemical Investigation of the Origin of Myasthenia Gravis</i> Chitnis, Prachee (17) 143-25 84th Drive, Apt. 6A, Briarwood 11435 <i>Use of Binocular Cues in Learning to Reach</i> Fisch, Martin Adrian (17) 334 College Road, Bronx 10471 <i>Undocumented Complex Social Relations in Captive <i>Theropithecus gelada</i></i> Kim, Grace Maria (17) 40-04 171st Street, Flushing 11358 <i>Investigating a New, More Potent Antineoplastic Ether Lipid Agent</i> Kim, Kubinne (18) 26 Gramercy Park S., #2G 10003 <i>Characterizing Human and Chimpanzee Sera Immune Reactivity Against V1/V2 Regions of HIV Envelope Protein</i> Kreibich, Thomas Alfred (17) 100 Bleeker Street, Apt. 13A 10012 <i>Selection of Virally Transformed Cells According to Motility, Using Filters of Defined Pore Sizes</i> Lam, Felix (17) 43-32 195th Street, Flushing 11358-3519 <i>Effects of Neuropharmacologic Agents on Melanogenesis</i> Leung, Juliana (17) 10 Monroe Street, Apt. G.A.9 10002 <i>Production and Use of Lysostaphin as a Bactericidal Agent Against <i>Staphylococci</i></i> Liang, Michael (17) 141-12 Coolidge Avenue, Briarwood 11435 <i>Transport of Glutathione Ester Derivatives Into Mice Liver and Kidney Cells and Human Erythrocytes</i></p>

Lin, Erwin (17) 14-22 College Point Blvd., College Point 11356
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Lin, Peter T. (17) 61-17 Wetherole Street, Rego Park 11374
Role of Gender in Correlates of Commitment

Lin, Robert (18) 144-80 Sanford Avenue, Flushing 11355
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Liu, Christopher C. (17) 56-17 205 Street, Oakland Gardens 11364
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Liu, Fei-Yong (17) 93-07 Lamont Avenue, Elmhurst 11373
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Miou, Judy (18) 45-21 Bowne Street, Flushing 11355
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Nadgar, Dhananjai (16) 595 Main St., Apt. #1001 10044
Calculating Errors for Scatterometer Data Caused by Sampling Variability

Oh, Yongmin (17) 2546 East 13th Street, Brooklyn 11235
Defining Two New Sertoli Cell Lines: FSH and Opioids Regulate Cellular Function

Powell, Whitney Susanne (16) 8719 Seaview Ave., Brooklyn 11236
Effects of Topology on Comprehension of Mathematical Concepts in Young Children

Saxena, Abhay (17) 73-51 255 Street, Glen Oaks 11004-1133
Specular Highlight Detection

Schneider, Michael Luck (18) 509 W. 110th Street, Apt. 2A 10025
Immunogenicities of Peptides Isolated From gp96 as a Vaccination Against Cancer and Infectious Disease

Shah, Sanjiv Bipin (17) 71-10 32nd Avenue, Jackson Heights 11370
Serum and Angiotensin II Induce Lactate Dehydrogenase in Cultured Vascular Smooth Muscle

Shusterman, Zakhar (17) 1284 East 53rd Street, Brooklyn 11234
Initial Mechanisms of Vesicular Stomatitis Virus Infection and Transport in Brain of BALB/c Mice Following Intranasal Instillation: Immunocytochemical Analysis of Viral Protein Distribution

Sun, Josephine (17) 675 Water Street, Apt. 21D 10002
Characterization of Novel yes-Related Proto-oncogene, yrk, in Hematopoietic Tissues

Tang, Henry (18) 5721 8th Avenue, Brooklyn 11220
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Tien, Merrick (17) 67-101 Exeter Street, Forest Hills 11375-4150
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Toshav, Aran Mordechai (17) 83-24 Beverly Road, Jamaica 11415
Genetic Distance of Male Baboons to the Troop

Wong, Edmund Hong-Sing (17) 154-65 20th Rd., Whitestone 11357
Regulation of Apolipoprotein E Gene Expression in Macrophage Cell Lines

Trinity School
Kamiyama, Kay M. (17) 301 Cathedral Parkway, Apt. 6-G 10026
Detection of Platelet Fc Receptors by Means of Visible Indicator Cells, and Application for Immune Complex Determination

Plainview
Plainview-Old Bethpage High School
Alper, Huntley Joseph (17) 92 Cedar Drive West 11803
Metal Doping of YBa₂(Cu_{0.95}X_{0.05})O₇; X = Fe, Ni, Pb, Sb, Al, Mn

Port Washington
Paul D. Schreiber Senior High School
Blum, Jennifer Ellen (17) 70 Soundview Dr. 11050
Determination of Structure of Lipid A and Core Oligosaccharide of A Band Lipopolysaccharide From the AK1401 Strain of Pseudomonas aeruginosa

Krieger, Paul Matthew (17) 74 Litchfield Road 11050
Novel Fuel Cell Utilizing Homogeneous Electrocatalysts Supported on Molten Salts for Co-generation of Acetaldehyde

Parasharami, Archis Ashok (16) 36 Pequot Avenue 11050
Fabrication and Evaluation of Fiber Optic Probes for Tip of Near-Field Scanning Optical Microscope

Shafter, Jonathan Gregory (17) 161 Soundview Drive 11050
Genetic Matrix Optimizer: Parallel Genetic Algorithm to Transform Sparse Matrices Into Special Forms

Roslyn Heights
Roslyn High School
Huang, Willis (17) 34 Birchdale Lane, Port Washington 11050
Mineral Transport Into Endocarp and Pericarp of Cucumber Fruit

Klein, Joshua Peter (17) 64 Highland Avenue, Roslyn 11576
Effect of Aging on Mitochondrial Number in Drosophila melanogaster St-e

Tanen, Benjamin David (17) 41 Spring Hill Road, East Hills 11577
Integee-Representative Sets

Setauket
Ward Melville High School
Braunstein, Todd Franklin (17) 30 Abbey Lane 11733
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Cho, Stephen Hyun (17) 9 Schooner Cove, East Setauket 11733
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Katz, David John (17) 16 Hilltop Rd., Stony Brook 11790
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Mathias, Thomas Mario (17) 3 Spencer Lane, Stony Brook 11790
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Shoreham
Shoreham-Wading River High School
Tanaka, Hirohisa Alexander (17) 69 Highland Down 11786
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South Huntington
Saint Anthony High School
Trnka, Tina Maria (17) 10 Splitrail Place, Commack 11725
Improving Biphenylene Synthesis With Flash Vacuum Pyrolysis of Triazenybenzoic Acids

Spring Valley
Spring Valley Senior High School
Chan, Jesse T. (17) 36 Ridge Avenue 10977
Origin of Texture Produced During Thermalized Sputtering of Rare Earth Transition Metal Film Magnet

Scott, Nicole Denise (17) 6 Crown Court, Chestnut Ridge 10977
Racial Perception and Identification in Young Children

Staten Island
Tottenville High School
Haq, Ihtsham Ul (17) 100 Grandview Terrace 10308
Electromagnetic and Chloraminic Stress-Related Changes in Fibroblast and Tumor Cultures

Salerno, Simon Anthony (17) 78 Bellfield Avenue 10312
Myelin Basic Protein Isoforms in Brain of Adult Ray Raja erinacia

Susan E. Wagner High School
Rosen, Jody Rachel (16) 355 Grantwood Avenue 10312-1978
How Does Visual Perception of Familiar and Non-Familiar Objects Affect Performance on Filtering and Condensation Tasks?

Syosset
Syosset High School
Kirkup, Jr., Benjamin Chapman (17) 41 Narcissus Drive 11791-2820
Influence of Arabinose Markers on Competitions Between Mutually Antagonistic Escherichia coli

Lee, Karen Misun (17) 8 Narcissus Drive 11791
Induction of Expression of Endogenous Retrotransposons, Intracisternal A-particles, in Normal Mouse Mammary Epithelium

Wappingers Falls
Roy C. Ketcham Senior High School
Cho, Jennifer Yee-Wah (17) 5 Lenny Ct. 12590
Impact of Odor Stimuli on Teenage Food Consumption

NORTH CAROLINA
Chapel Hill
Chapel Hill High School
Ng, Lenhard Lee (16) 1107 Roosevelt Dr. 27514-3238
Grocery-Shopping Problem and Extensions

Durham
North Carolina School of Science & Math
Ku, Anthony Yu-Chung (18) 115 Lochwood West, Cary 27511
Optimization of Fullerene Synthesis in a Modified-CVD Apparatus Using Organic Vapors

NORTH DAKOTA
Sawyer
Sawyer Public School
Knorr, Robert John (17) R.R. 1, Box 31 58781
Nodulation of the BARC-2(RJ4) Soybean by a Mutant of Bradyrhizobium japonicum Strain USDA 61

Williston
Williston High School
Wahl, James Marshall (18) 317 Rose Lane 58801
Representing Time in Neural Networks

OHIO
Beachwood
Beachwood High School
Schneps, Jennifer Sonia (17) 3284 Havel Dr. 44122
Effects of Age on Short-Term Visual Memory

Hudson	<u>Hudson High School</u> Stevenson, Daniel Cramer (17) 123 Clairhaven Drive 44236 <i>Electrochemical Deposition Simulated by Generalized Diffusion-Limited Aggregation</i>	Fl. Worth	<u>Dunbar High School</u> Aguayo, Juan Carlos (18) 3306 Runnels St. 76106 <i>Stability and Longevity of Asteroid Orbits In and Near the Kirkwood Gaps: Computer Simulation</i>
Parma Heights	<u>Holy Name High School</u> Heerssen, Heather Marie (17) 9971 Emerson St., Columbia Station 44028 <i>Early Events in Induction of Systemic Resistance in Cucumbers</i>		Ngau, David Lin (17) 2725 Amber Drive S. 76133 <i>Process of Effusion Using Classical Newtonian Model: Computer Simulation</i>
Rocky River	<u>Magnificat High School</u> Povinelli, Michelle Lynn (17) 1415 Prince Charles, Westlake 44145 <i>Monte Carlo Simulation of Pion Emission From Chiral Condensate Resulting From Quark-Antiquark Collision in Proton-Antiproton Collider</i>	Houston	<u>Saint John's School</u> Richards, Brant Walter (17) 12211 Preakness Way 77071 <i>Corrosion Evaluation of Nickel Aluminum Bronze Pump Impeller</i>
OREGON			<u>Stratford High School</u> Surprenant, Eryn Gabriel (18) 1000 Country Place Drive #74 77079 <i>Effects of Atrial Natriuretic Peptide and C-Type Natriuretic Peptide on Secretion of beta-Endorphin by the Pituitary Tumor Cell Line AtT-20/D16v</i>
Bend	<u>Bend Senior High School</u> Pliester, Callie Jane (17) 20532 Klahani Drive 97702 <i>The Great Meadow Lake: Its Origins and Nature</i>	Round Rock	<u>Round Rock High School</u> Leih, Todd Christopher (18) 2905 Quail Run 78681 <i>Fuzzy Logic and Bayesian Belief Networks Applied to Passive Sonar Automatic Detection and Tracking</i>
Salem	<u>McNary Senior High School</u> Quan, William Wei Lin (17) 5297 Chehalis Drive N., Keizer 97303 <i>Amino Acid, Lysine, in Four Varieties of Amaranth Seeds</i>	San Antonio	<u>Oliver W. Holmes High School</u> Chen, Yen-Lin (18) 8311 Meadow Post 78251-2314 <i>Kinetic Analysis and Structural Characterization of Assimilatory Nitrate Reductase in Cyanobacterium Anabaena sp. CA</i>
PENNSYLVANIA			<u>John Marshall High School</u> Franke, Kurt Alan (17) 9238 Lasater 78250 <i>Acoustic Holography</i>
Allentown	<u>Allentown Central Catholic High School</u> Wang, Rex Tueng (17) 4011 Winchester Road 18104 <i>Ribosomal RNA Processing in Ciliate Tetrahymena thermophila</i>		<u>Northside Health Careers High School</u> Brown, Doris R. (17) P.O. Box 1572, Castroville 78009-1572 <i>Interaction of Oncogene and Tumor Suppressor Gene Product: Role in Oncogenesis</i>
Bensalem	<u>Bensalem High School</u> Mehta, Samir (17) 1532 Pear Tree Lane 19020 <i>Purified Human Plasma Kallikrein Does Not Stimulate But Primes Neutrophils for Superoxide Production</i>	The Woodlands	<u>McCullough High School</u> Day, Rhonda Renee (17) 619 Hickory Ridge, Spring 77381 <i>Physically Fit = Mentally Fit? Correlation Between Physical Exercise and Mental Health Among Children</i>
Emmaus	<u>Emmaus High School</u> Tsao, Perry I-Pei (18) 1047 Treeline Dr., Allentown 18103-6009 <i>Computer-Simulated Behavioral Evolution of a Primitive Animal</i>	UTAH	
Havertown	<u>Haverford Township Senior High School</u> Nissim, Sahar (16) 121 Foster Avenue 19083 <i>Effect of DNA Conformation Changes on Regulation of Nitrogen Utilization in Escherichia coli</i>	Provo	<u>Timpview High School</u> Shirts, Michael Randall (17) 2565 N. 1000 E. 84604 <i>Effect of Static Compression on Rate of Proteoglycan Fragment Diffusion in Cartilage Explants</i>
SOUTH CAROLINA		VERMONT	
Columbia	<u>Heathwood Hall Episcopal School</u> Terracio, Nathan Louis (17) 3114 Duncan Street 29205 <i>Structural Basis of Freeze Resistance in Cells Cultured on Artificial Substrates</i>	Hinesburg	<u>Champlain Valley Union High School</u> Morgan, Meredith Jeannine (17) 30 Bishop Rd., Shelburne 05482 <i>Io-Effect on Magnetospheric Plasma Wave Loss Cone Distribution Relative to Jovian Decametric Radio Emission</i>
TENNESSEE		VIRGINIA	
Fayetteville	<u>Lincoln County High School</u> Adcox, Kara Danielle (17) Rt. 6, Box 124 37334 <i>Analysis of Effects of Gradient Cure on Adkern Inert Propellants</i>	Alexandria	<u>Mount Vernon High School</u> Potts, Lea Gabrielle (17) 9407 Mount Vernon Circle 22309 <i>Polycrystalline Polytych Diamond Matriciation</i>
Memphis	<u>White Station High School</u> Achar, Pramod Narahari (16) 6019 Southampton Drive 38119 <i>Orthogonal Function Set in Two Variables</i>		<u>Thomas Jefferson High School of Science & Technology</u> Bunger, Nils (17) 1922 Kenbar Court, McLean 22101 <i>Window and Signal Weighting Effects in Acousto-Optic Spectrum Analyzer</i>
Nashville	<u>Harpeth Hall School</u> Hampton, Melissa Lee (17) 3003 Hobbs Road 37215 <i>Mapping of Starspots on Star HD 12545</i>		Dandekar, Kapil Ramesh (17) 8922 Applecross Ln., Springfield 22153 <i>Planetary Ring Dynamics: Computer Modeling of Ring Material Gravitational Confinement</i>
TEXAS			Diez, Melanie Sarah (17) 12566 Cricket Lane, Woodbridge 22192 <i>Analysis of Infrared Observations of Early Star Formation</i>
Beaumont	<u>Monsignor Kelly Catholic High School</u> Nylin, Elizabeth Catherine (17) 1140 Monterrey 77706 <i>Controlling Fractal Growth in Dynamic Environment Using Adaptive Non-Deterministic Attractors</i>		Dittmer, Andrew Olstrom (17) 2601 Five Oaks Road, Vienna 22181 <i>Investigation of Generalized Sigma Function Over Certain Metric Spaces</i>
	<u>Westbrook Senior High School</u> Krasner, Dani Dayne (16) 825 Stacewood 77706 <i>Functional Analysis of Dust Fulmination in Particle Storage Facilities</i>		Kim, Hyun Jin (18) 8821 Side Saddle Road, Springfield 22152 <i>Effect of Coordination of Imidazole to Nickel(II) on Its Rate of Iodination</i>
Bellaire	<u>Bellaire Senior High School</u> Coon, Elizabeth Ann (17) 10622 Endicott, Houston 77035 <i>Frivolous Fish: Increased Heterospecific Mate Preferences in Gynogenetic Fish Poecilia formosa</i>		Lee, Anna Eun (17) 9512 Woody Lane, Great Falls 22066 <i>Regulation of Heat Shock Protein (hsp 72) by Vasoactive Intestinal Peptide and Synaptic Activity in Cultured Central Nervous System Neurons</i>
Denton	<u>Texas Academy of Math & Science</u> Brostow, Gabriel J. (16) 3813 Montecito Rd. 76205 <i>Magneto-Optical Analysis of HgCdTe and Other Semiconductors</i>		Montemerlo, Michael Steven (17) 9619 Villagesmith Way, Burke 22015 <i>Application of Genetic Algorithms and Bayesian Inference to Data Classification</i>
	<u>Linetsky, Michael (17) 1322 Edgewood Dr., Richardson 75081</u> <i>Synthesis of Polymethylated Caged Dienes</i>		Nguyen, Thinh Huy (17) 6929 Westhampton Drive 22307 <i>Effects of Micelle Structure on Rate of Fading of Crystal Violet in Basic Solution</i>
	<u>Pouraghabagher, Cyrus (17) UNT Box 6955 76203</u> <i>In situ Transmission Electron Microscopy of Sn/Cu Intermetallic Formation</i>		Solin, David Allen (17) P.O. Box 1415, Leesburg 22075 <i>Analysis of Ionospheric Focused Heating</i>
	<u>Rodriguez, Rogelio Fernando (18) 7409 Colorado Lane, Pharr 78577</u> <i>Mechanical Behavior of Polymer Liquid Crystals (PLCs) and Blends: Static and Dynamic Properties</i>	Blacksburg	<u>Blacksburg High School</u> Farkas, Rebecca Michal (17) 817 North Drive 24060 <i>Cloning and Expression of Bacillus thuringiensis Toxin Genes in Acetobacter diazotrophicus</i>
El Paso	<u>Coronado High School</u> Becvar, Laura Elisabeth (17) 5444 La Estancia 79932 <i>Biological Assay for Detection, Identification, and Quantitation of Toxins: LUMITOX Five-Year Study</i>		

Finalists of the 52nd Annual Westinghouse Science Talent Search

Designed to discover and develop scientific, mathematical, and engineering ability among high school seniors, the Science Talent Search is conducted annually by Science Service in partnership with the Westinghouse Electric Corporation.

The forty finalists of the 52nd Annual Science Talent Search, among whom \$205,000 in Westinghouse Science Scholarships will be distributed, represent about 2.4% of those who completed entries in this scientific and educational competition.

These 13 females and 27 males are awarded an all-expenses-paid trip to Washington, D.C. to attend the Science Talent Institute, March 4 through March 8, 1993. Here 10 of the finalists will be selected by the board of judges to receive one of the following four-year Science Scholarships: one \$40,000 (\$10,000 per year), one \$30,000 (\$7,500 per year), one \$20,000 (\$5,000 per year), three \$15,000 (\$3,750 per year), four \$10,000 (\$2,500 per year). The remaining 30 contestants will be given Westinghouse Science Scholarships of \$1,000 each.

The finalists are 16 to 18 years of age and come from 33 cities in 20 states. They were picked by the judges from among 1662 contestants who completed their entries by writing a report on their scientific research and submitting it along with an official entry form and supporting documents. Completed entries were received from 48 states, the District of Columbia and Puerto Rico.

THIS LISTING IS ORGANIZED BY THE HIGH SCHOOL THE FINALIST ATTENDS. THE STUDENT'S
NAME, AGE, HOME ADDRESS AND PROJECT TITLE FOLLOW.

CALIFORNIA

Fremont Mission San Jose High School
Lee, George C. (18) 679 Olive Avenue 94539
Bioremediation: Microbial Degradation of Hydrocarbons on California Coast and Its Effects on Marine Ecosystems

La Jolla La Jolla High School
Chen, Constance Lee (17) 6219 Buisson Street, San Diego 92122
Maturation, Tumorigenicity, and Gene Expression - LOV and PEM

COLORADO

Boulder Fairview High School
Mahanthappa, Mahesh Kalyana (16) 2865 Darley Avenue 80303-6307
On the Diophantine Equation $x^m + D = g^n$

CONNECTICUT

Stamford Stamford High School
Duchin, Moon (17) 171 Blackberry Drive 06903
Applications of Minkowski's Theorem to Classical Number Theory

FLORIDA

Pensacola Pensacola High School
Nguyen, Ha Van (16) 610 Edgewater Drive 32507
Two-Dimensional Study on Factors Influencing Spatial Perception Abilities Among Males and Females

HAWAII

Honolulu Punahou School
Itagaki, Michael Ward (18) 2326 Armstrong Street 96822
Synthesis of alpha,3-Dehydrotoluene Precursors for Anticancer Applications

ILLINOIS

Aurora Illinois Math & Science Academy
Pine, Elizabeth Michele (17) 6936 S. Bennett Avenue, Chicago 60649
Clarifying Evolutionary Relationships Between and Within Two Major Groups of Basidiomyceteous Fungi (Mushrooms and False-Truffles) by Means of rDNA Sequencing

INDIANA

Ellettsville Edgewood High School
Zawistoski, Ann Nicole (17) 400 Kelli Drive 47429
Ancient Tidal Cycles Found in Hindostan Whetstone Beds (Pennsylvanian), Orange County, Indiana

Muncie Indiana Academy for Science, Math and Humanities
Michael, Alexis Laura (17) Wagoner Hall - BSU, Box 107 47306
Development of Large Area CsI(Th) Detector for Nuclear Physics Experiments

KANSAS

Prairie Village Shawnee Mission East High School
Kamath, Ravi Shanker (16) 8306 W. 98th Terrace, Overland Park 66212
Characterization and Analysis of a Ricin B-Chain Galactose-Binding Mutant Through a Bacteriophage Display System

MARYLAND

Bethesda Walt Whitman High School
Liu, Mian-Lai (17) 8636 Melwood Road 20817
Regulation of Immunoreactivity in 293 Cells Transfected Mutant Amyloid Precursor Protein (APP)

Greenbelt Eleanor Roosevelt High School
Wang, Ken Sandor (17) 4411 West Caroline Avenue, Beltsville 20705-2550
Enhancement of Omega-3 Fatty Acid Production and Prevention of UV Damage in Algae

Silver Spring Montgomery Blair High School
Chien, Steve Shaw-Tang (17) 9431 Sunnyfield Court, Potomac 20854-2091
Multi-Dimensional Extension of Wythoff's Game
Huang, Wei-Hwa (17) 11813 Riding Loop Terrace, North Potomac 20878
The Peg Solitaire Army
Mann, Elizabeth Dexter (17) 110 Dale Drive 20910
Parallel Implementation of the Wavelet Transform

MINNESOTA

Aitkin Aitkin High School
Johnson, Mark Alan (17) Route 2, Box 86 56431
Quantitative Analysis to Simulate Water Level Fluctuations of Small Lakes

- Minneapolis Spring Lake Park Senior High School
Sukhatme, Mayukh Vasant (17) 426 Oak Creek Ct., Vadnais Heights 55127
*Structural, Biochemical, and Molecular Comparisons of Nitrogen-Fixing and Non-Nitrogen-Fixing Alfalfa (*Medicago sativa* L.) Root Nodules*
- Plymouth Wayzata Senior High School
Egeland, Ryan David (18) 16505 Birch Briar Trail 55447
Survival and Levels of Protein, Carbohydrate, and ATP in Daphnia magna During Chronic Exposure to Sodium Chloride Pollution: Six-Year Environmental Study
- MISSISSIPPI**
Jackson Saint Andrew's Episcopal School
Friedman, Judah David (17) 216 Fox Hollow Place, Madison 39110
Development and Testing of Model System Using Bacterial Ribonuclease H to Simulate Homologous Human Immunodeficiency Virus Enzyme
- Long Beach Long Beach Senior High School
Nazaretian, Robin Nanette (18) P.O. Box 724 39560
Do Orange Oil and Reticulitermes flavipes (Isoptera: Rhinotermitidae) Mix? Six-Year Study
- NEW HAMPSHIRE**
Exeter Phillips Exeter Academy
Lee, Suzee Eurie (17) 526 Sheridan Circle, Charleston, WV 25314
Fractal Dimensional Analysis of Non-Flagellated Bacterial Colonies
- NEW MEXICO**
Moriarty Moriarty High School
Thomas, Blake W. (17) P.O. Box 221, Edgewood 87015
Cepheid Pulsation: Spectroscopic Study, Phase IV
- NEW YORK**
Bronx Bronx High School of Science
Ryu, Youngju (18) 2418 Delanoy Avenue 10469
Regulatory Protein Exchange as Novel Paradigm for Defining Molecular Basis of Heart Failure
- Brooklyn Midwood High School at Brooklyn College
Freyberg, Zachary Zisha (17) 2040 East 22nd Street 11229
Discovery and Functional Analysis of a New Protein Kinase C Isoenzyme in Human Platelets
- Cedarhurst Hebrew Academy of the Five Towns & Rockaway
Rapoport, Davida Alpert (17) 364 Island Avenue, Woodmere 11598
Role of Macrophages in Central Nervous System of Rats With Experimental Autoimmune Encephalomyelitis
- New York Stuyvesant High School
Fisch, Martin Adrian (17) 334 College Road, Bronx 10471
Undocumented Complex Social Relations in Captive Theropithecus gelada
Lin, Erwin (17) 14-22 College Point Blvd., College Point 11356
Loop Two Amino Acids Important for Ability of P-glycoprotein to Confer Multidrug Resistance
- Port Washington Paul D. Schreiber Senior High School
Shafter, Jonathan Gregory (17) 161 Soundview Drive 11050
Genetic Matrix Optimizer: Parallel Genetic Algorithm to Transform Sparse Matrices Into Special Forms
- Roslyn Heights Roslyn High School
Huang, Willis (17) 34 Birchdale Lane, Port Washington 11050
Mineral Transport Into Endocarp and Pericarp of Cucumber Fruit
- NORTH CAROLINA**
Chapel Hill Chapel Hill High School
Ng, Lenhard Lee (16) 1107 Roosevelt Drive 27514-3238
Grocery-Shopping Problem and Extensions
- Durham North Carolina School of Science & Math
Ku, Anthony Yu-Chung (18) 115 Lochwood West, Cary 27511
Optimization of Fullerene Synthesis in a Modified-CVD Apparatus Using Organic Vapors
- OHIO**
Hudson Hudson High School
Stevenson, Daniel Cramer (17) 123 Clairhaven Drive 44236
Electrochemical Deposition Simulated by Generalized Diffusion-Limited Aggregation
- TEXAS**
Denton Texas Academy of Math & Science
Pouraghabagher, Cyrus (17) UNT Box 6955 76203
In situ Transmission Electron Microscopy of Sn/Cu Intermetallic Formation
- Ft. Worth Dunbar High School
Aguayo, Juan Carlos (18) 3306 Runnels Street 76106
Stability and Longevity of Asteroid Orbits In and Near the Kirkwood Gaps: Computer Simulation
- VIRGINIA**
Alexandria Mount Vernon High School
Potts, Lea Gabrielle (17) 9407 Mount Vernon Circle 22309
Polycrystalline Polyptych Diamond Matriciation
Thomas Jefferson High School of Science & Technology
Dittmer, Andrew Olstrom (17) 2601 Five Oaks Road, Vienna 22181
Investigation of Generalized Sigma Function Over Certain Metric Spaces
Montemerlo, Michael Steven (17) 9619 Villagesmith Way, Burke 22015
Application of Genetic Algorithms and Bayesian Inference to Data Classification
- Radford Radford High School
Kastning III, Ernst H. (17) P.O. Box 1048 24141
Evolution of a Karstic Groundwater System, Cave Hill, Augusta County, Virginia: Multidisciplinary Study
- WASHINGTON**
Bothell Bothell Senior High School
Passey, Aaron James (18) 23212 53rd Avenue, S.E. 98021
Pitch Acceleration in Model Airplanes as it Relates to Wing Spar Strength
- WISCONSIN**
Racine Washington Park High School
Merlo, Xanthi M. (17) 3025 Spring Street 53405
Effect of Protein Z on Factor X₂ Initiated Blood Coagulation

