

THE 43rd ANNUAL

Science Talent Search®

for the
Westinghouse Science Scholarships
and Awards

1984 HONORS GROUP



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

FOR RELEASE: WEDNESDAY, JANUARY 18, 1984

The Science Talent Search was the pioneering endeavor to discover at the high school senior year level those who have the potential to become the research scientists and engineers of the future. It has fulfilled this function far beyond the hopes entertained when this educational project was conceived. Many millions of dollars in scholarships in colleges and universities throughout the nation, supplementing the Westinghouse Science Scholarships, have been given to those who have thus been discovered to have high science talent.

This selection of students with research ability in science and engineering has become an institution and tradition due to approval from the academic community and the creditable records of winners in colleges, universities and professional positions.

The participation of a great industrial organization in the financing of the annual Science Talent Search is a notable contribution to the advancement of science in America. This activity can be considered a support of "pure research" of importance equal to the fundamental researches in the Westinghouse Research Laboratories. Science and education are grateful for the financial support of the forty-three Science Talent Searches by the Westinghouse Electric Corporation and the Westinghouse Educational Foundation.

Science Service, engaged in the interpretation and public understanding of science on a broad front, is proud of administering the annual Science Talent Search. From the newspapers, educators, scientists and engineers of America, there has been enthusiastic cooperation in this annual activity that means so much to high school seniors interested in science and engineering.

1984 Honors Group

The achieving of Honors in the Science Talent Search is an evidence of ability and interest in science and engineering which should be taken into consideration by colleges and universities in admissions and granting of scholarships. For this reason this Honors List is distributed to all universities and colleges of the United States. Each of those winning honors 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 115 girls and 185 boys.

From this list of 300 Honors, 40 are being chosen as Winners of the Washington trip. Among these, \$89,500 in scholarships and awards will be distributed. The Winners are being announced subsequent to the distribution of this list and their names will be published in SCIENCE NEWS of January 28, 1984, and it will be sent upon request accompanied by a self-addressed stamped envelope.

(age follows name; home address underlined>

ALABAMA

Elmore Landrum, Elizabeth Mallory 17 Edgewood Academy 101 Camellia Dr., Wetumpka
36092 Population Genetics Using the Hardy-Weinberg Law
Homewood Baker, Barbara Lynn 17 Homewood H.S. 606 Devon Dr. 35209 Detecting Octopine in
Crown Gall Tumors
Huntsville Hartman, Keith Richard 17 Randolph H.S. 1103 Deborah Dr. 35801 Applications of
Laser Speckle

ALASKA

Anchorage Hamilton, Douglas Peary 18 Robert Service H.S. SRA Box 33-D 99507 Sums of
Arithmetic Sequences of the P-th Degree

ARKANSAS

Sheridan Fiser, Deborah Renay 17 Sheridan H.S. Route 1, Box 171 72150 Modern Analysis for
Ancient Tools

CALIFORNIA

Alhambra Don, Karen Kei 17 Alhambra H.S. 2045 Arriba Dr., Monterey Park 91754 Effects of
Small Molecules Upon the Oxygen Affinity of Hemoglobin
Liao, Lushalan Boy-Yu 17 Alhambra H.S. 504 Lindaraxa Park 91801 Orbit of Pallas:
A New Modified Laplacian Method of Orbit Determination
Glendora Kaup, Nancy Jeneane 18 St. Lucy's H.S. 1200 Los Robles Pl., Pomona 91768 Isolation
of a New Class of Mutants Restoring Protein Secretion in Strain SE2078 of
Escherichia coli
La Jolla Flatte, Michael Edward 16 La Jolla H.S. 1126 Muirlands Vista Way 92037 Practical
Method of Measuring an Object's Absolute Curvature
Lin, Michael Tai-Ju 16 La Jolla H.S. 7836 Bellakaren Pl. 92037 Cubik Math: A
Computer Tutorial in Group Theory
San Diego Lantz, Robert Edward 17 Patrick Henry H.S. 6244 Wenrich Dr. 92120 Sophisticated
Language Interface
San Marino Ko, Stephen 17 San Marino H.S. 2695 Wallingford Rd. 91108 Identification of
Mitochondrial Morphology in Human-Hamster Hybrids With Cyanine Dye
Wei, Ted 17 San Marino H.S. 3105 Monterey Rd. 91108 Monoclonal Antibody
Recognition of Human Coronavirus Specified Antigens

CONNECTICUT

Greenwich Mead, Peter Augustus 17 Greenwich H.S. P.O. Box 1379 06836 Structure Elucidation
of Organic Compounds by Computers

DELAWARE

Lewes Morris, Nicole Anneliese 17 Cape Henlopen H.S. 100 Kingsbridge Rd., Rehoboth
19971 Exploration into the Relationships Among Brain Organization, Handedness
and Sex

DISTRICT OF COLUMBIA

Washington Waldmann, Carol Ann 18 Georgetown Day School 3910 Rickover Rd., Silver Spring,
MD 20902 Suppression of Proliferation of T Cells Stimulated by Antigen by a
Monoclonal Antibody (Anti-Tac) to the Interleukin-2 Receptor
DiLorenzo, Daniel John 17 Gonzaga College H.S. 109 Pearl Light Circle, Ft.
Washington, MD 20744 Engineering and Construction of a Computerized Robot

FLORIDA

- Clearwater Niemann, Mark Murphy 18 Clearwater H.S. 2210 Grovewood Rd. 33546 Wing Anomalies in Progeny *Drosophila melanogaster* Caused by Parental Exposure to Ethanol
- Coral Gables Saito, Christopher Gerald 17 Coral Gables H.S. 881 Ocean Dr., Apt. 10-D, Key Biscayne 33149 Analysis of Digital Circuit Design Through Function Simplification
- Coral Springs Fisher, Jennifer Lynn 17 Coral Springs H.S. 4060 Coral Hills Dr. 33065 Mathematical Approach to Period Changes in Oscillating Chemical Systems
- Woolley, Douglas Ernest 17 Coral Springs H.S. 3897 N.W. 82nd Way 33065 Computer Graphic Solutions to Various Mathematical Puzzles
- Ft. Lauderdale Hainaway, Doris Abdulla 17 Cardinal Gibbons H.S. 1237 Seabreeze Blvd. 33308 Marking Culex Larvae with Vital Dyes for Larval Ecological Studies
- Hicks, William Benjamin 16 Cardinal Gibbons H.S. 908 S.E. 6th Ct. 33301 Effect of Social Change in the United States from 1960 to 1980 on the Length of Grammatical Units
- Renhart, Daniel Robert 17 Cardinal Gibbons H.S. 3310 N.E. 23 Ave., Lighthouse Point 33064 Using Anaerobically Digested Residue of *Eichhornia crassipes* from Different Nutrient Sources as Soil Supplements
- Fendl, Karin Christine 17 Nova H.S. 6230 Hancock Rd. 33330 Toward the Improvement of Triarylethylene Derivatives in the Treatment of Estrogen-Dependent Breast Cancer
- Fisher, Ronald Scott 17 Nova H.S. 126 Laurel Rd., Hollywood 33021 Cost and Burden Placed on Medical Resources by Performing Coronary Artery Bypass Grafting on Patients 65 and Older
- Rubin, Stephanie Beth 17 Nova H.S. 3651 North 52nd Ave. Hollywood 33021 Characterization of Mutant Growth Factor Independent Cell Lines
- Wilson, Holly Louise 17 Westminster Academy 4329 El Mar Dr. Lauderdale-by-the-Sea 33308 Solid State Nuclear Track Detection of Subterrestrial Flow of Radon as a Precursor of Earthquakes: A Four Site Analysis
- Hawthorne Chihocky, Anthony Benjamin 17 Hawthorne H.S. Rt. 1, Box 495A 32640 In vitro Purging of Bone Marrow From Children With Acute Lymphoblastic Leukemia
- Jacksonville Cheng, Sunfa 16 Terry Parker Sr. H.S. 6318 Whispering Oak Dr. W. 32211 Use of the Fiber Optic Thin Layer (FOTL) Cell in Kinetic and Equilibrium Investigations of Redox Systems
- White, Karen Frances 17 Terry Parker Sr. H.S. 3262 Fruitwood Ln. 32211 Relationship of Topology and Structural Inorganic Chemistry
- Lake City Dana, Gary Carl 17 Columbia H.S. Rt. 13, Box 523 32055 Analysis of Ascorbic Acid During Dehydration
- Keimp, Windy Ann 17 Columbia H.S. Rt. 14, Box 472 32055 Analysis of Seismic Recordings of Quarry Blasts Involving Six Different Measurements
- Melbourne Wieszicki, Brian Stanley 17 Central Catholic H.S. 454 N. Citrus Circle, Palm Bay 32905 Inhibitor Incorporation in Calcium Oxalate Systems
- Bibb, Karen Louise 17 Melbourne H.S. 567 S. Sonora Circle, Indiantonic 32903 Study of Sail Performance Through Wind Tunnel Testing
- Chapman, Deborah Marie 17 Melbourne H.S. 2920 Hield Rd., Palm Bay 32907 Effects of Caffeine on the Memory Functions and Concentration of Humans
- Kubaservice, Geoffrey M. 17 Melbourne H.S. 615 Dundee Circle, West Melbourne 32901 Enzymatic and Microbial Pre-Treatment of Raw Water to Aid in the Reduction of Trihalomethane-Forming Organic Acids
- Parker, Stephen Robert 17 Melbourne H.S. 2826 Hield Rd. Palm Bay 32905 Utilization of Recombinant DNA Techniques to Introduce an Energy Conserving Nitrogen Pathway to *Methylophilus methylotrophus*
- Merritt Island Zielke, David Michael 18 Merritt Island H.S. 95 Alhambra Ave. 32952 Development of Automated Computer Driven Controls to Provide Enhanced Laser Performance and Reduced Operating and Maintenance Requirements
- Miami Wong, Chow Ho 18 Miami Sunset Sr. H.S. 13460 S.W. 66 St. 33183 Electrochemical Reduction of Uranium (VI) in Phosphoric Acid Solutions
- Rotolante, Ann Marie 17 Our Lady of Lourdes Academy 5345 S.W. 84th St. 33143 Preecranic Subsistence in Paloma, Peru
- St. Augustine McCants, Mary Colleen 17 St. Augustine H.S. 242 Argonaut Rd. 32086 Effect of Ca^{++} on the Surfactant Partitioning in Oil/Brine/Surfactant/Alcohol Systems
- Sarasota Higby, Mary Ann 18 Cardinal Mooney H.S. 998 N. Gondola Dr., Venice 33595 Role of Calcium in Geotropism
- Satellite Beach Pettera, Laura Elizabeth 16 Satellite H.S. 43 Arthur Ct. 32937 Determination of the Parameters of the Close Binary Star System RZ Senti

GEORGIA

- Atlanta Shapiro, Nathan Andrew 17 Briarcliff H.S. 954 Liawen Court, N.E. 30329 Effect of Nuclear Protein and DNA Methylation on Gene Expression in Cancer Cells

- Worth, John Eugene 17 Lakeside H.S. 1399 Vista Leaf Dr., Decatur 30033 Statistical Analysis of Length to Width Ratios of Brachiopods
- Macon Campbell, Emily 17 Central H.S. P.O. Box 6805 31208 Variations in Perceptual Judgments
- Savannah Sydeman, Melissa Terese 17 Savannah Country Day School 13336 Chesterfield Dr. 31419 *Ophiotaenia lacertinae* sp. n. (Cestoidea) From Siren *Lacertina* L. in Georgia

HAWAII

- Aiea Fukumoto, Troy Yukio 17 Aiea H.S. 98-1694 Hapaki St. 96701 Effects of Athletics on Spatial Orientation and Spatially Guided Locomotion

ILLINOIS

- Barry Guthrie, David Payne 18 Barry H.S. 567 Williams St. 62312 Diesel Fuel-Aqueous Alcohol Microemulsions
- Chicago Davis, Ann Renee 17 Mather H.S. 6251 N. Fairfield Ave. 60659 Net Transfers of Lipids Between Plasma Lipoproteins: A New Biochemical Index for Detecting Human Coronary Artery Disease
- Evanston Bezaitis, Andrew John 17 Evanston Township H.S. 3933 Enfield, Skokie 60076 Stability of the Classical Covalent Bond
- Osako, Phaenarete Hisako 16 Evanston Township H.S. 2718 Isabella St. 60201 Computer Apparatus to Study Liquid Crystals
- Zell, Matthew Michael 17 Evanston Township H.S. 1201 Ridge 60202 Study of Magnetic Drag Forces
- Peru Dudek, Robert Steven 17 St. Bede Academy 623 Roosevelt Rd., La Salle 61301 Light-Wave Communication
- River Grove Ly, Kim Ha 17 Mother Theodore Guerin H.S. 4452 N. Narragansett, Harwood Hts. 60630 Role of Ca^{++} in the Cytotoxic Activity of Mouse Macrophage
- Skokie Gupta, Fumendu 16 Niles West H.S. 5446 W. Kirk, Morton Grove 60053 Use of a Transposable Element as a Transformation Vector for *Dictyostelium discoideum*

INDIANA

- Bloomington Brothers, Maxwell James 18 Bloomington H.S. North 120 S. Park Ridge Rd. 47401 Approximate First Born Descriptions of High Energy Asymmetric ($e,2e$) Cross Sections for Helium
- West Lafayette Sorge, Marlon Edmond 17 Harrison H.S. 3316 Indian Rock Lane 47906 Measurements of the Variations in Light Output With Variations in Temperature of Light Emitting Diodes and Scintillator Paddles

IOWA

- Davenport Rosario, Raymond Torio 17 Central H.S. 3128 Fernwood Ave. 52807 Synthesis and Turnover of Phosphotyrosine by Human Y79 Retinoblastoma Cells

KANSAS

- Shawnee Mission Ott, Derek Alan 17 Shawnee Mission East H.S. 7520 Aberdeen, Prairie Village 66208 Extension of the Enthalpy and Volume Relaxation Theory in Polyvinyl Chloride Annealed Below T_g

LOUISIANA

- New Iberia Lamperez, Alfred John 17 Catholic H.S. 506 W. Main St. 70560 Study of Some Effects of Crowding on Human Behavior

MAINE

- South Paris Montanaro, Christopher Roland 17 Oxford Hills H.S. Box 236, Rd. #1 04281 Identification and Mapping of the Glycerol-3-Phosphate Dehydrogenase Structural Genes

MARYLAND

- Bethesda Liss, Martin Thomas 17 Walt Whitman H.S. 8712 Bradmoor Dr. 20817 Hormone Responsive Adenylate Cyclase System in a Murine Leydig Tumor Cell Line
- Burtonsville Dolecek, Kathryn Irene 16 Paint Branch H.S. 3008 Craiglawn Rd., Silver Spring 20904 Effects of an Electric Field on the Population Growth and Morphology of the Ciliate *Tetrahymena pyriformis*

Cambridge Malkus, Amy Jane 17 Cambridge South-Dorchester H.S. Route 1, Box 133 21613
Dissociation, Sorting and Staining of Marine Sponge Cells

Columbia Levine, Todd Dylan 17 Hammond H.S. 9502 Sylvan Dell 21045 Serial Lectin-Affinity
Chromotography of Thyroid Stimulating Hormone: A Model for the Correlation of
Hypothyroidism to Specific Physiologic Origins

Ellicott City Meng, Margaret Van-Yu 17 Centennial H.S. 5542 Windysun Court, Columbia 21045
Isolation and Partial Characterization of a New Variant of Apolipoprotein E
Associated With Type III Hyperlipoproteinemia

Greenbelt Rivkin, Jan Winter 17 Centennial H.S. 10028 Century Dr. 21043 Investigations on the
Role of Iron Reductase in Soybean Nodules

Indian Head Smith, Douglas Alan 17 Eleanor Roosevelt H.S. 12206 Valerie Ln., Laurel 20708
Prebiotic Chemistry: The Origins of Life

Rockville Erdly, Marvin Thomas 17 Lackey H.S. 1061 Woodberry Dr., Bryans Rd. 20616
Quantitative Properties of the Unit Equilateral Simplex and the Determination of a
Theoretical Model of the Infinite-Dimensional Simplex

Silver Spring Goodin, John Thomas 17 Thomas S. Wootton H.S. 1487 Dunster Lane 20854 Bird
Survival Rates and Ages

Sullivan, Jeanne Marie 17 Thomas S. Wootton H.S. 1988 Lancashire Dr. 20854
Nuclear Tracking: Effects of Etching Conditions on Bulk-Etch Velocity

Haque, Mustafa Azimul 17 Springbrook H.S. 1011 Brantford Ave. 20904 Verification
of a New Equation of State for Polymer Melts

MASSACHUSETTS

Brighton Amato, Carmela Cristina 18 Mt. St. Joseph Academy 17 Breed St., East Boston
02128 Effects of Reduced Air Pressure on the Void Volume Percentage and Tensile
Strength of Epoxy Composites

Falmouth Clifford, Sheila Alicia 17 Falmouth H.S. 104 Queen St. 02540 Effects of South
Louisiana Crude Oil on Growth and Energy Stores of Brine Shrimp *Artemia* sp.

Hayward, Roger Charles 17 Falmouth H.S. 68 Chase Rd 02540 Development of
Apparatus and Procedures for Determination of Lift to Drag Ratios of Low Reynolds
Number Airfoils

Holden Demetry, Chrysanthie 17 Wachusett Regional H.S. 296 Chapel St. 01520 Strength of
Ice Composites

Greis, Carolyn Angle 17 Wachusett Regional H.S. 59 Banbury Ln. 01520 Linear
Thermal Expansion of the Carbonates

Williamstown Zabetian, Mahboud 17 Mt. Greylock Regional H.S. 1993 Cold Spring Rd. 01267
Multiple Wavelength Holography

MICHIGAN

Birmingham Drako, Dean Michael 18 Detroit Country Day School 14240 Melva Dr., Warren 48093
Improving Solar Cell Efficiency with Computer Control

Shell, Drew Richard 17 Detroit Country Day School 3680 Silver Sands, Drayton
Plains 48020 Computerized Ultrasonic Ranging System

Detroit Chund, Harish 17 Cass Technical H.S. 1545 Cherboneau #23 48207 Kinetics of
Calcium Activation of *Bacillus cereus* T Spores

Quinn, Roger Weihong 18 Cass Technical H.S. 7661 Fielding 48228 Role of Metastable
Phases in the Synthesis of Magnetic Oxides From Organometallic Precursors

Baum, Monica Susan 17 Renaissance H.S. 19506 Shrewsbury 48221 Heat Capacity of
Thorium Metal

Midland Hamburg, Mark Christopher 17 H. H. Dow H.S. 315 W. Meadowbrook Dr. 48640
Marking Rooted Binary Directed Graphs Using a Bounded Workspace

Warren Kudla, Arthur John 18 Fitzgerald H.S. 21487 Curie 48091 Agent Orange Components:
2,4-D, 2,4,5-T: A Study of Toxic Reactions on Chicken Embryo Morphology

MINNESOTA

Edina Cabrinity, Stephen Michael 17 Edina H.S. 6705 Rosemary Lane 55435 Maximizing
Bit Density Through Optimum Head/Media Design

Richfield Everson, Susan Elaine 17 Richfield H.S. 7121-15th Ave. S. 55423 Study of Courtship
Behavior of the Canadian Lynx, *Lynx Canadensis*, at the Minnesota Zoological
Garden

MISSISSIPPI

Brandon Shindler, Katherine Marie 17 Northwest Rankin H.S. 417 Millrun Rd. 39042 Three
Year Study of Fetal Imprinting

Holly Springs Kloha, Pamela Joanne 17 Marshall Academy 135 West Elder Ave. 38635 Implications
of Electrophoretic Biofeedback

Starkville Minyard, William Patrick 17 Starkville H.S. 202 Windsor Rd. 39759 Discovery and
Analysis of Novel Memory Systems in Lower Invertebrates

MISSOURI

Carl Junction Chew, Albert Fook Ming 17 Carl Junction Sr. H.S. 106 Rocky Lane 64834
Characterization of Conjugative R-Plasmid Found in a Newly Isolated Wild Type of
Escherichia coli

Maryville Griffin, Lorin David 17 Maryville R-II H.S. 615 West First St. 64468 Effects of
Calcium and Magnesium on the Attachment of the T4 Phage to *Escherichia coli*

Rolla Cheng, George Chen-hsi 18 Rolla H.S. 1307 Highland Dr. 65401 Balancing Oxidation-
Reduction Equations With the Microcomputer

MONTANA

Missoula Galarus, Douglas Edward 17 Sentinel H.S. 3117 Eldora Ln. 59803 Determination of a
Heuristic Algorithm to "Solve" the Traveling Salesman Problem in Low-Order
Polynomial Time

NEW JERSEY

Basking Ridge Luther, Kirsten Elizabeth 17 Ridge H.S. 38 William St. 07920 Vanadium (IV) d-
Electron Transitions as a Gauge of the Inductive Effects of Ligands

Bayonne Kataryniak, Paula Anne 17 Bayonne H.S. 134 W. 49th St. 07002 Possible Detrimental
Effects of Oxygen on Lifespan

Haddonfield Eisenberg, Ruth Anne 17 Haddonfield Memorial H.S. 36 West End Ave. 08033 Assay
of Immunoglobulin in Supernatants of Hybridoma Cells

Neptune van de Sande, Brett David 18 Neptune Sr. H.S. 714 Wayside Rd. 07753 Radio
Frequency Radiation from an Orbitron Tube

Parsippany Sohn, Lydia Lee 17 Parsippany Hills H.S. Box 33, Mountain Lakes, 07046 Enzymatic
Modulation and Ethylene Production in Fusiform Rust-Infected Pines

Waldwick Kim, Gilbert Chul Soo 17 Waldwick H.S. 113 Bergen Ave. 07463 Partitions of
Pascal's Triangle

Pham, Son Van 19 Waldwick H.S. 20 Moore Ave. 07463 Properties and Extensions of
the Fibonacci Sequence

NEW MEXICO

Albuquerque James, Amy Eileen 17 Eldorado H.S. 11905 St. Marys Dr., N.E. 87111 Effective
Flocculation of Colloidal Clays in Mine Tailings

Las Cruces Rhoades, William Randall 18 Mayfield H.S. 1919 Evelyn 88001 Bicycle Aerodynamics
Experimentation Using an Original Design

Los Alamos Saxman, Karl Albert 17 Los Alamos H.S. 1664 Camino Redondo 87544 Computer
Simulation of the Earth's Future Climate Based on the Radiative Energy Transfer,
the Biogeochemical Carbon Cycle, and Atmospheric Thermodynamics

NEW YORK

Albany Pu, William Tswenching 17 Colonie Central H.S. 19 Delafield Dr. 12205 Development
of Monoclonal Antibodies for Use in Clinical Determinations of Chemotherapeutic
Drug Efficacy

Amherst Sageev, Michah El-Yakim 17 Amherst Central H.S. 170 High Park Blvd. 14226 Some
Interesting Planar Packing Phenomena of Circles

Baldwin Haimowitz, Caryn Lara 18 Baldwin Senior H.S. 1428 Berkley St. 11510 Relationship
Between Photosynthetic Rates and Somatal Density in Zhen-Zu-Ai, Guang-Lu-Ai,
and Starbonnet

Hill, David Gary 18 Baldwin Sr. H.S. 715 W. Carl Ave. 11510 Design and Testing of
an Accelerometer

Schlifstein, Brett Howard 17 Baldwin Sr. H.S. 759 Washington St. 11510 Effect of
Lauralac as a Preservative System in Cheddar Cheese Sauce and Onion and
Cucumber Dip

Yang, Sun Hye 18 Baldwin Sr. H.S. 964 Lydia Place 11510 Observation of Oxidation
Band Migration in the Scillating Chemical Reaction

Bayside McDermott, David Francis 17 Bayside H.S. 38-11 217 St. 11361 Isolation and
Phenotypic Characterization of Revertants of a Viral Deletion Mutant

Schneider, Kathryn Elizabeth 17 Bayside H.S. 171-12 33 Ave., Flushing 11358
Computer Analysis of Harmonic Structure of Music

Altura, Rachel Allison 17 Benjamin N. Cardozo H.S. 162-01 Powells Cove Blvd.,
Whitestone 11357 Molecular Analysis of a 2.6 kb Region of a Human Cancer Gene
(H-Src)

Caramore, Diane Elizabeth 17 Benjamin N. Cardozo H.S. 61-42 230 St. 11364
Probability that Two Lucas Numbers Will be Relatively Prime

Chan, David Kenneth 17 Benjamin N. Cardozo H.S. 45-14 204 St. 11361 Meson
Symmetry

Desantis, Jodi Ann 16 Benjamin N. Cardozo H.S. 245-72 77 Crescent, Bellerose
11426 Preliminary Investigation of Napin Gene Structure

Goodstadt, Alan 17 Benjamin N. Cardozo H.S. 244-96 61 Ave., Douglaston 11362
Towards in vitro Crosslinkage of Extensin Precursors

Jerzowski, Joseph Walter 17 Benjamin N. Cardozo H.S. 43-51 248 St., Douglaston
11362 Use of Glucose Oxidase Enzyme Electrode in Conjunction With Recombinant
Genetic Techniques to Produce an Artificial Pancreas

Kim, Cathy 16 Benjamin N. Cardozo H.S. 249-15 Shiloh Ave., Bellerose 11426 Effect
of Varying Nutrient Solution Concentrations on the Growth and Vegetative
Reproduction of *Eichhornia crassipes*

Nahorny, James Jacob 17 Benjamin N. Cardozo H.S. 197-23 55 Ave., Flushing
11365 Orientation Reactions by the Horseshoe Crab, *Limulus polyphemus*, in
Response to Chemical Stimuli and a Newly Discovered Pheromone

Shim, Holly 19 Benjamin N. Cardozo H.S. 240-44 68 Ave., Douglaston 11362
Exhibition of Topo-Thigmo-Taxis, Photo-Taxis, and Geo-Taxis During the Larval
Migration of the Hessian Fly

Stanis, Daniel Jerome 17 Benjamin N. Cardozo H.S. 4856 206 St. 11364 Purification
of Glia Maturation Factor by Hydrophobic Interaction Chromatography

Stueckler, Patti Fran 17 Benjamin N. Cardozo H.S. 56-36 208 St. 11364 Divisibility
Properties of Integer Generating Solutions of an Iterative Root-Taking Function

Taylor, Dina 16 Benjamin N. Cardozo H.S. 53-31 213 St. 11364 Effect of Prokaryotic
and Eukaryotic Protein Synthesis Inhibitors on *Sulfolobus*

Wolfe, Steven Frederick 17 Benjamin N. Cardozo H.S. 67-33 214 St. 11364
Development of a Dicyanomethylene Derivative as an Assay for the Analysis of
Steroids via High Pressure Liquid Chromatography and Liquid (and Gas)
Chromatography-Mass Spectrometry

Yen, Terry 17 Benjamin N. Cardozo H.S. 5611 226 St. 11364 Experimental Study of
Flexible vs. Rigid Oscillating Tail Propulsion

Suchin, Craig Robert 17 John F. Kennedy H.S. 2896 Shore Dr., Merriek 11566
Surface Strain Distribution in the Lumbar Spine

Rosenzweig, Kenneth Eric 16 Abraham Lincoln H.S. 525 Neptune Ave. 11224
Characterization and Isolation of Oocyte Plasma Membranes in *Xenopus laevis*

Reid, Michael 17 Brooklyn Technical H.S. 84-33 90 St., Woodhaven 11421
Geometric Quilt: A Brief Study of Tessellations

Oudkerk, Collie Anthony 17 Erasmus Hall H.S. 345 Empire Blvd. 11226 Inhibition of
Xanthine Oxidase by Folic Acid and Its Coenzyme Derivatives

Chen, Ling 18 F. D. Roosevelt H.S. 1771 63 St. 11204 Effect of Chilling on Zea
Mays L.

Meyer, Ann-Margret 17 Fort Hamilton H.S. 7020 Sixth Ave. 11209 Fecal Coliform
Analysis of Mussels and Their Environment

Levy, Lauren Simone 17 James Madison H.S. 1672 East 22 St. 11229 Effects of
Ethyl Alcohol on the Growth Rate, Reproductive Cycle, and Behavioral
Characteristics of *Volvox carterii*

Barnett, Lance Eric 17 John Dewey H.S. 2643 East 64 St. 11234 Analysis of an
Equation Whose Roots Are Generated by a Reciprocal Difference Equation

Ling, Michael Wai-Guy 17 John Dewey H.S. 2500 65 St. 11204 Friendly Integers

Leder, Michelle Irene 17 Midwood H.S. 2811 Bragg St. 11235 Social Effects on
Mortality and Timing of Molts in Crustacea: A Case Study of *Jassa falcata*

Usadi, Adam Keith 17 Midwood H.S. 3009 Bedford Ave. 11210 Analysis of the
Variation of Reflectivity of Solar Sail Material (Aluminized Mylar) As Its Tension is
Increased

Harwitz, Jonathan Michael 17 City Honors H.S. 222 Bedford Ave. 14216 Endurance
Training in Crabs

Onglingswan, Aaron John 16 Half Hollow Hills H.S. East Three Astro Place 11746
Modification of Human Erythrocyte Membrane Structure Through Control of the
 Ca^{2+} -ATPase and Cytoskeletal Proteins

Panzer, Scott Russell 17 Half Hollow Hills H.S. East 26 Lucille Lane 11746 Alternate
One-Carbon Group Sources for Methionine Synthesis in a Chinese Hamster Ovary
Mutant Cell Line

Chan, Emilia Hsiu-Mei 17 Newtown H.S. 87-17 Elmhurst Ave. 11373 Effect of
Different Concentrations of TPA on AD5

Jones, James Ethan 17 Sewanhaka H.S. 106 Stewart St. 11001 Effect of Spatial
Relationships in Stimuli on Visual Evoked Potentials

Babbar Rajeev Kumar 17 Francis Lewis H.S. 43-27 159 St. 11358 Case Control Study
of Occupational and Dietary Risk Factors, Smoking Status and Bladder Cancer

Huang, Wendy Wan-Juoh 17 Francis Lewis H.S. 160-06 35 Ave. 11358 Comparison
of the Acculturation Rate of Three Chinese Immigrant Groups

Joseph, Vilma Angella 17 Francis Lewis H.S. 232-06 133 Ave., Laurelton 11413
Relationship Between the Sense of Efficacy of High School Seniors Towards Their
Future and Their Opportunities to Express Their Concern on Nuclear Issues

Moulins, Helen 17 Francis Lewis H.S. 56-19 174 St., Fresh Meadows 11365 Effects
of Isolationism and Experience on Aggressive Behavior in the *Melittobia* Male Wasp

Patel, Rita 17 Francis Lewis H.S. 53-11 192 St., Fresh Meadows 11365
Construction of Single-layered and Dual-layered Micro-array Electrodes for Greater
Current Output

Shin, Kap Jung 18 Francis Lewis H.S. 219-47 C 67 Ave., Bayside 11364 Deposition
of Thin Films by Thermal Decomposition of Solid State Organometallic Compounds
Using an Argon Laser

Yusaf, Shehla 17 Francis Lewis H.S. 116-43 131 St., South Ozone Park 11420 Effects
of Inorganic Pyrophosphate, Metatrisphosphate, and Polyphosphate on the Growth of
Thermophilic and Extreme Thermophilic Anaerobic Bacteria

Yoon, Ho Jung 18 John Bowne H.S. 41-24 Parsons Blvd. 11355 Computer Simulation
of Infusion and Injection Kinetics of Drugs

Schussheim, Adam Evan 17 Great Neck South H.S. 24 Russell Woods Rd. 11021
Viscosity and Conductance of Binary Solutions

Shichtman, Diane Claire 16 Great Neck South H.S. 4811 Concord Ave. 11020 Vapor
Pressure and Thermodynamic Properties of Normal Liquids

Trester, Jeffrey J. 17 North Sr. H.S. 107 Baker Hill Rd. 11023 Numerical Analysis of
the Kinking and Braiding of the Saturnian F-Ring Using Gravitational Perturbation
Theory

Bomser, David Steven 17 South Sr. H.S. 3 Longview Pl. 11021 New Approach to
Determine the Viscosity of Normal Liquids

Alexiades, Macrene Renee 16 Jamaica H.S. 170-20 84 Ave., Jamaica Estates 11432
Purification of Thromboxane Synthase: The Determination of TSN-1
Monoclonal Antibody Specificity and Optimum Purification Methods

Cheng, Jerry 17 Jamaica H.S. 90-16 182 Place, Hollis 11423 Effect of Polyamines
on the Growth of *Escherichia coli* Under Stress Condition

Peng, Linda 17 Jamaica H.S. 80-48 160 St. 11432 Effect of Disinfection on the
Accuracy of the Dental Impression

Raghunath, Basanti Sharon 17 Jamaica H.S. 170-11 89 Ave. 11432 Effect of Explicit
Intent in a Child's Moral Judgment

Colucci, Michael Anthony 17 St. Joseph's Collegiate Institute 162 Pin Oak Dr.,
Williamsville 14221 Identification of Possible Virulence Markers for Coagulase-
Negative Staphylococci

Schackow, T. Eric 16 Shaker H.S. 16 Schuyler Meadows Club Rd., Loudonville 12211
Spatial Geometry of Cyclic Organic Molecules

Altman, Stuart Mark 17 Long Beach H.S. 652 E. Penn St. 11561 Analysis of Sealant
Materials for the Physiological Extracellular Patch Clamp

Miller, Lori Michele 17 Long Beach H.S. 14 Reynolds Dr., Lido Beach 11561
Immunocytochemical Localization of Prostaglandin-Forming Enzymes in Human
Placental Tissue From Normal and Toxic Pregnancies

Solomon, Robert Gary 17 Long Beach H.S. 24 Park Dr., Lido Beach 11561 Protoplast
Isolation for Use in dsRNA Transfer via Protoplast Fusion in *Endothia parasitica*

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Harvey, Tamara Maureen 17 James Madison Memorial H.S. 5801 Tolman Terrace 53711



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Washington Trip Winners of the Forty-third Annual Science Talent Search® for the Westinghouse Science Scholarships and Awards

The forty Washington trip winners of the 43rd Annual Science Talent Search, among whom \$89,500 of Westinghouse Science Scholarships and Awards will be distributed, represent about .4% of those who completed entries in this scientific and educational competition.

Designed to discover and develop scientific and engineering ability among high school seniors, the Science Talent Search is conducted annually for the Westinghouse Science Scholarships and Awards by Science Service, 1719 N Street, N.W., Washington, DC 20036.

Ten girls and 30 boys are being invited to Washington, DC for an all-expense paid trip March 1-5, 1984, to attend the Science Talent Institute. Here 10 winners will be selected by the board of judges to receive one of the following four-year Westinghouse Science Scholarships: One \$12,000 (\$3,000 per year), two \$10,000 (\$2,500 per year), three \$7,500 (\$1,875 per year), four \$5,000 (\$1,250 per year). The remaining 30 contestants will be given Westinghouse Science Awards of \$500 each.

The trip winners are 16 to 18 years of age and come from 28 cities in 19 states. They were picked by the judges from among 14,281 contestants of whom 1056 completed their entries by writing a report on their science project, submitting personal data and teacher recommendations. Completed entries were received from 46 states, the District of Columbia and Puerto Rico.

Washington Trip Winners

HOME ADDRESS follows name of school

AGE of winner follows name

CALIFORNIA

La Jolla Lin, Michael Tai-Ju 16 La Jolla H.S. 7836 Bellakaren Pl. 92037

CONNECTICUT

Greenwich Mead, Peter Augustus 17 Greenwich H.S. P.O. Box 1379 06836

FLORIDA

Merritt Island Zielke, David Michael 18 Merritt Island H.S. 95 Alhambra Ave. 32952

GEORGIA

Atlanta Shpirer, Nathan Andrew 17 Briarcliff H.S. 954 Liawen Court, N.E. 30329

ILLINOIS

Chicago Davis, Ann Renee 17 Mather H.S. 6251 N. Fairfield Ave. 60659
Evanston Zell, Matthew Michael 17 Evanston Township H.S. 1201 Ridge 60202

INDIANA

Bloomington Brothers, Maxwell James 18 Bloomington H.S. North 120 S. Park Ridge Rd. 47401

KANSAS

Shawnee Mission Ott, Derek Alan 17 Shawnee Mission East H.S. 7520 Aberdeen, Prairie Village 66208

MAINE

South Paris Montanaro, Christopher Roland 17 Oxford Hills H.S. Box 236, Rd #1 04281

MARYLAND

Ellicott City Meng, Margaret Van-Yu 17 Centennial H.S. 5542 Windsun Court, Columbia 21045
Rivkin, Jan Winter 17 Centennial H.S. 10028 Century Dr. 21043

MASSACHUSETTS

Brighton Amato, Carmela Cristina 18 Mt. St. Joseph Academy 17 Breed St., East Boston 02128
Falmouth Hayward, Roger Charles 17 Falmouth H.S. 68 Chase Rd. 02540

MICHIGAN

Midland Hamburg, Mark Christopher 17 H. H. Dow H.S. 315 W. Meadowbrook Dr. 48640

MISSISSIPPI

Starkville Minyard, William Patrick 17 Starkville H.S. 202 Windsor Rd. 39759

MISSOURI

Carl Junction Chew, Albert Fook Ming 17 Carl Junction Sr. H.S. 106 Rocky Lane 64834

MONTANA

Missoula Galarus, Douglas Edward 17 Sentinel H.S. 3117 Eldora Ln. 59803

NEW JERSEY

Neptune van de Sande, Brett David 18 Neptune Sr. H.S. 714 Wayside Rd. 07753

NEW YORK

Amherst Sageev, Michah El-Yakim 17 Amherst Central H.S. 170 High Park Blvd. 14226
Baldwin Yang, Sun Hye 18 Baldwin Senior H.S. 964 Lydia Place 11510
Bayside Altura, Rachel Allison 17 Benjamin N. Cardozo H.S. 162-01 Fowells Cove Blvd., Whitestone 11357