

FILE COPY

**HONORS GROUP**

IN

THE *35th* ANNUAL

*Science Talent Search®*

for the

**Westinghouse Science Scholarships  
and Awards**

1976



**SCIENCE CLUBS OF AMERICA**

Administered By Science Service

1719 N STREET N. W. WASHINGTON, D. C. 20036

## *The Meaning of Honors in the Science Talent Search*

The achieving of Honors in the Science Talent Search is an evidence of ability and interest in science and engineering which can 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 utilizing a list furnished by the American Council on Education.

All boys and girls awarded Honors in the Science Talent Search are considered so outstanding that any institution of higher learning will be justified in considering their abilities carefully.

In past years members of the Honors Group have made creditable records in the colleges and universities to which they have been admitted.

From the list of 300 Honors, 40 are being chosen as Winners of the Washington trip. Among these \$67,500 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 February 7, 1976, and it will be sent upon request accompanied by a self-addressed stamped envelope.

Each of those winning honors is being furnished with multiple certifications intended to accompany applications for college admissions and scholarships, but a listing in this pamphlet should be accepted as an equivalent certification.

Judging in this competition was without regard to sex. Listed are 77 girls and 223 boys. Of the Honors Group 61.7% rank in the upper 5% in their high school classes.

## *The Annual Science Talent Search*

The Science Talent Search was the pioneering endeavor to discover at the high school senior year level those who have the potentialities 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.

In a real sense the annual Science Talent Search is more than a scholarship contest. It is a major step toward making scientific and engineering talent available for important tasks in our civilization.

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 thirty-five Science Talent Searches by the Westinghouse Educational Foundation, an organization endowed by the Westinghouse Electric Corporation for the promotion of science and engineering.

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.

### *Honors Group*

*in the Thirty-fifth Annual Science Talent Search* ®

**HOME ADDRESS** is underlined                           **AGE** of winner follows name  
Title of project report submitted is on next line

**ALABAMA**

Childersburg	Allen, Margie Lucile 18 Childersburg H.S. 59 Lakeside Dr. 35044 Possible Solution to the Four Color Map Problem
Florence	Landers, Lisa Dianne 18 Bradshaw H.S. 120 E. Sanduskey Way 35630 Analysis of Polychlorinated Biphenyls in Tennessee River Sediment by Electron Captor Gas Chromatography
Huntsville	Shofner, Mildred Gibson 17 Randolph H.S. 914 Fagan Springs Dr. S.E. Effect of Exposure of Hemoglobins S, SC, and S with 35801 Glucose 6 Phosphate Dehydrogenase Deficiency in a Low Magnetic Chamber
Jackson	Durant, Martha Elizabeth 17 Jackson H.S. 813 Edgewood Cir. 36545 Developing a Heat Test for Diabetic Urinalysis

ALASKA

CALIFORNIA

Alhambra	Wissmann, Paul Barrett 17 Alhambra H.S. 2301 Guest Dr. 91803 A Simplified Method of Fingerprint Classification Adaptable to Computers
Anaheim	Maier, Mark Chris 18 Loara H.S. 1749 Minerva Ave. 92804 Possible Relationship Between Sunspot Numbers and Terrestrial Weather Conditions
Antioch	Cronin, Keith Raymond 17 Antioch Sr. H.S. 1913 Dennis Dr. 94509 Effects of Colchicine Upon Planarian Regeneration
	Diethelm, Eric Conrad 17 Antioch Sr. H.S. 116 Pleasant Pl. 94509 Can Artemia Be Used as a Bio-Toxic Indicator of Chlordane and Like Compounds?
Corning	Koball, Mary Kathleen 17 Corning Union H.S. R.R. #2, Box 137 96021 Causative Agents of Olive Knot Disease and a Possible Control Technique
Fremont	Ritter, Niles David 18 Irvington H.S. 5613 Butano Park Dr. 94538 Expected Value
	Black, James Edward 17 Mission San Jose H.S. 36862 Montecito Dr. 94536 Unique Method of Storing ClO <sub>2</sub> Extracted From an Antiseptic Reagent
Granada Hills	Gardner, Deane Allen 18 John F. Kennedy H.S. 17338 Zola St. 91344 Design of a Practical Low Cost Electronic Word Recognition System
Lake Arrowhead	Codona, Johanan Lael 17 Rim of the World H.S. 23116 Brookside Rd., System for Generating Color Excess Curves Crestline 92325 of Early Type Stars
Los Angeles	Chi, Chul Kyung 17 Belmont H.S. 830 S. Park View #101 90057 Factors Affecting the Process of Alcoholic Fermentation of Grapes
	Chi, Kak Kyung 17 Belmont H.S. 830 S. Park View #101 90057 Discovery and Isolation of Antibiotic-Producing Microorganisms From Samples of Soil and Ginseng
Vale, Ronald David 17 Hollywood H.S. 7906 Hillside Ave. 90046 Light-Dark and Temperature Cycle Entrainment of Circadian Rhythms in <i>Phaseolus coccineus</i>	
Perkowski, Sandra Zofia 16 Marlborough H.S. 157 S. Arden Blvd. 90004 Pheromones as an Attracting Agent Between <i>Lissocarcinus orbicularis</i> and Holothurian atra	

## FLORIDA

Kurth, Rebecca Ann '17 Venice H.S. 3109 Colby Ave. 90066  
Systematic Evaluations Regarding Vectors of Pollination for Strelitzia reginae

Pace, Scott Norman '17 Woodrow Wilson H.S. 2716 Phelps Ave. 90032  
An Amateur Plasma Jet

Newbury Park Reeds, John William '17 Newbury Park H.S. 863 Calle Compo, Thousand Thermal Conduction Through Dual Glazed Windows Oaks 91360

Roum, James Henry '17 Newbury Park H.S. 96 Dewey Ave. 91320  
Analysis of a Homemade Solar Water Heater

North Hollywood Mampalam, Thomas T., Jr. '17 Harvard School 451 Veteran Ave., Los In vivo Binding of Aryl Sulfatase to Neurospora Angeles 90024 Cell Walls

Ojai Bender, Joseph McGlynn '17 Nordhoff H.S. 607 Palomar 93023 Characterizations of Colletotrichum Species and Isolates With Aminopeptidase Profiles

Palo Alto Damron, Peter Carl '17 Henry M. Gunn Sr. H.S. 12678 La Cresta Ct., Determination of the Solubility Product of Los Altos Hills 94022 Strontium Cromate Using Spectrophotometry and Computer Analysis

Rancho Palos Verdes Omohundro, Stephen Malvern '16 Miraleste H.S. 27921 Palos Verdes Dr. An Additive Music Synthesis Device With Video East 90274 Feedback

San Diego Mikkelson, Karen Sue '17 Will C. Crawford H.S. 4558 Aragon Dr. 92115 Detection of Ophthalmological and Neurological Dysfunctions by the Visually Evoked Response

San Jose Chow, Edith '17 Piedmont Hills H.S. 2049 N. Capitol Ave. 95132 Investigation of the Structure of Shale Oil Asphaltenes

Simi Valley Rocha, Michael Edward '17 Simi Valley H.S. 3330 Big Springs Ave. 93063 Properties of Renal Renin Before and After Acidification

Sunnyvale Martin, Kreg Allen '17 Marian A. Peterson H.S. 990 Wood Duck Ave., A Life-Game Computer Santa Clara 95051

Hogan, Robert Charles '17 Sunnyvale H.S. 334 Greenlake Dr. 94086 Design and Construction of a Josephson Junction for Observation of its I-V Characteristics

Sun Valley Powell, Joseph Edward '16 John H. Francis Polytechnic H.S. 10636 Nettle-Feasibility of Designing a Palm-Sized High Level Language Computer ton 91352

Van Nuys Goldsmith, Larry Mark '17 Grant H.S. 6140 Whitsett Ave. #4, N. Hollywood Crystal Structure of Monoclinic Sulfur at -160 Degrees Centigrade 91605

## COLORADO

Arvada Brewer, Forrest Duane '17 Pomona Sr. H.S. 7585 Kline Dr. 80005 Numerical Approximations of Very Small Star Clusters

Denver Pool, Samuel Edwin '18 North H.S. 3017 Osceola St. 80212 Rocket Stability by Alteration of Combustion Chamber

## CONNECTICUT

Avon Strittmatter, Stephen Mark '17 Avon H.S. 23 Old Wood Rd. 06001 Increased Solubility of Deoxygenated Sickle-Cell Hemoglobin by Limited Succinylation

Guilford Anthony, Joan '17 Guilford Sr. H.S. 70 Hill Top Rd. 06437 Influence of Corrosion Inhibitors on the Electrode Potential Field in the Vicinity of Copper Contamination on Aluminum

Trumbull Hetes, Robert George '17 Trumbull H.S. 8 Ward Pl. 06611 Investigative Studies on Mengo Virus Properties

West Hartford Hotez, Peter Jay '17 William H. Hall H.S. 11 Lovelace Dr. 06117 Effect of Acetylcholine Chloride and Atropine on the Electrocardiology of Lumbricus and its Relation to Mammalian Smooth Muscle

Woodbridge Dunn, Suzanne '18 Amity Reg. Sr. H.S. 31 Hickory Rd. 06525 Effect of Algal Preferences on the Distribution of Littorina littoralis

Coral Gables Labbie, Andrew Scott '18 Coral Gables Sr. H.S. 2315 S.W. 25 St., Miami Travel Time Analysis of the Orange Streaker 33133 Mass Transit System

Deland Youngquist, Robert Carl '17 Deland Sr. H.S. 5800 Lake Mamie Rd. 32720 Binding of Methylmercury to Cysteine

Fort Lauderdale Williams, Gary Eugene '18 Dillard H.S. 112 S.W. 24 Ave 33312 Identification of Palmitate Esterase Enzyme Hydrolyzed in Phyto and Zooplankton

Hialeah Donohue, Richard '17 Hialeah Sr. H.S. 311 East 51 St. 33013 Globin Synthesis in Beta Thalassemia

Jacksonville Kupfer, Stuart Roy '17 Terry Parker Sr. H.S. 2456 Ligustrum Rd. 32211 Effect of Juvenile Hormones on Mosquitoes

Gerth, Raymond Albert '17 Sandalwood H.S. 8036 Jamaica Rd. N. 32216 Relationship Between the Perception of Man and That of the Shark

Herbanek, Ronald Wade '17 Sandalwood H.S. 1236 Molokai Rd. 32216 Extent of Creep of Aluminum as Indicated by the Measurement of Microhardness

Stackhouse, Randall Elliott '18 Sandalwood H.S. 1070 Nightingale Rd. 32216 Vapor Pressure Curves of a Solvent-Solution System

Melbourne Aycock, Brian Lee '18 Melbourne H.S. 881 S.E. James Cir., Palm Bay Antennal Sensilla Receptors Involved in Detecting the Trail Pheromone of the Imported Fire Ant 32905

Murray, Maggie Pearl '17 Melbourne H.S. 419 Franklyn Ave., Indialantic Protein and RNA Synthesis During the in vitro Tube 32903 Growth of Vinca rosea Pollen

Merritt Island Denninghoff, Kurt Richard '17 Merritt Island H.S. 1665 Mars St. 32952 Effects of Carcinogens on the Complement Fixation Reaction of the Immune Response

Miami Schmitt, Peter Harlan '17 Archbishop Curley H.S. 125 N.E. 98 St., Miami Dodder Transmission of Lethal Yellowing Shores 33138 Palm Disease

Flanagan, Cynthia Ann '16 Coral Park Sr. H.S. 1600 S.W. 82 Ct. 33155 Binding of Adriamycin to Insoluble Calcium Phosphate

Horton, Scott Edward '17 Miami Edison Sr. H.S. 117 N.W. 87 St. 33150 Effects of Ablation of the Eyestalks on the Spiny Lobster

Besvinick, Laura Eve '17 Southwest Miami H.S. 8545 S.W. 104 St. 33156 Isolation and Purification of a Collagenolytic Cathepsin and its Separation from Cathepsin B1

Diaz, Martha Rachel '17 Southwest Miami H.S. 5760 S.W. 94 Pl. 33173 Localization of Angiotensin Converting Enzyme by Immunofluorescence Microscopy

Dowd, David Alan '17 Southwest Miami H.S. 9801 W. Flagler D-403 33174 Analysis of the Rolamite

Tershakovec, Andrew Michael '18 Southwest Miami H.S. 9101 S.W. 48 Terr. Use of Buoyant Density Gradient Centrifugation in Evaluating the Effects of Chemotherapy on the AKR Leukemic Cell Population 33165

Carman, Deborah Ann '17 North Miami Sr. H.S. 2300 Bayview Lane 33181 Electrophoresis and Electrofocusing of Acid Mucopolysaccharides

Perry, Bradford Benton '17 North Miami Sr. H.S. 2380 Bayview Lane 33181 Inhibition of Dextranase From Oral Streptococcus Mutans

Pregeant, Charles William '17 A. Crawford Mosley H.S. 312 Carolina Ave., Lynn Haven 32444 Stability of Selected Surfactant Formulations

## GEORGIA

Atlanta Cooper, Virginia Kay '17 Lakeside H.S. 2386 Sherbrooke Dr. 30345 Purification of Factor VIII Employing Snake Venom

Watkinsville Moore, Lisa Marie '17 Oconee County H.S. Rt. 1, Box 252 30677 Butterflies Found in Oconee County, Georgia

## HAWAII

Aiea Nishimoto, Wade Yasuo '17 Aiea H.S. 98-1008 Piku Pl. 96701 Factors Involved in the Mechanisms Controlling Biorhythms and Metabolic Rates in the Sandcrab

Honolulu  
 Van Brunt, Jeffrey Denton 17 Aiea H.S. 98-267 Kaonohi St. #4 96701  
 Investigation Into the Mechanism Controlling Germination of Pollen  
 Yamachika, Thomas 17 W.R. Farrington H.S. 1821 Waihee St. 96817  
 Statistical Analysis of "Random" Number Selection  
 Ching, Nathan Shang-Peng 16 Roosevelt H.S. 2215 Star Rd. 96813  
 Effects of Yeast Extract on P388 Lymphoma Cells  
 Hew, Eric Yin Kau 17 Saint Louis H.S. 751 Isenberg St. 96814  
 Growth of the Galapagos Tortoise  
 O'Brien, Terrence Xavier 18 Saint Louis H.S. 1617 Keeaumoku St. #605  
 Symbiotic Relationship Between *Lissocarcinus*  
*orbicularis* and its Host, *Holothuria atra* 96822  
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 Okada, Donna Chie 17 Waimea H.S. P.O. Box 562, Kekaha 96752  
 Effect of Toxin, Holothurin on Lymphoma Cells

#### IDAHO

Twin Falls  
 Meier, Gary Allen 17 Twin Falls H.S. Rt. #2 83301  
 Mineral Composition of Four Garden Vegetables in Relation  
 to Human Dietary Requirements

#### ILLINOIS

Carpentersville Krumpack, Stephen William 17 Dundee Community H.S. 402 Hoover Dr.  
 Unimolecular and Bimolecular Nucleophilic 60110  
 Substitution Reactions as a Function of Temperature  
 Victoria, Randall Harry 18 Irving Crown H.S. N. River Dr., R.R. #3,  
 Mass Transport: Does It Occur at a Box 303, Algonquin 60102  
 Rate Proportional to the Square of the Wave Height?  
 Chicago Etten, Joan Marie 17 Mather H.S. 5944 N. Richmond 60659  
 Gifted or Average: Where Do You Draw the Line?  
 Kaz, Martin Elliott 17 Roger C. Sullivan H.S. 1220 W. Columbia 60626  
 Site CK-151

Evanston Brickman, Michael 17 Evanston Twp. H.S. 9122 Forest View, Skokie  
 Crown Gall: The Effects of Antibiotics 60203  
 Ghosh, Tapobrata 17 Evanston Twp. H.S. 2108 Forestview 60201  
 Study of Dihydroerytheromycin's Potency in  
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 Hurtig, Janise Deirdre 17 Evanston Twp. H.S. 1727 Wesley 60201  
 Importance of Prehistoric Houses in Settlement Archeology  
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 Suzuki, Daniel Thomas 17 Evanston Twp. H.S. 807 Dodge Ave. 60202  
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Evergreen Park Bryan, Timothy Michael 17 Evergreen Park H.S. 9824 S. Millard Ave.  
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 Skokie Bible, Keith Christopher 17 Niles Twp. West H.S. 9012 Mango Ave. 60053  
 Chemical Characterization of the Defensive Secretion of  
*Melanoplus femur-rubrum*  
 Horwitz, Randy Jonathan 17 Niles Twp. West H.S. 8524 N. Hamilton Dr.  
 Gibberellic Acid Induced Variances in the Soybean 60076  
 Villa Park Belter, Robert Louis 17 Willowbrook H.S. 309 School St. 60181  
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#### INDIANA

Indianapolis Miller, Timothy J. 17 Brebeuf Preparatory School 5674 Washington Blvd.  
 Fingerprints Pertain to Heredity 46220  
 Cosby, Karen Sue 18 Franklin Central H.S. 8202 Eaton Ct. 46239  
 Formation, Function and Composition of Capsules in  
 Opportunistic Pathogenic Fungi

Kendallville  
 Michigan City  
 Mishawaka  
 Stuart, Philip Eugene 16 Marian H.S. 409 W. 10 St. 46544  
 Lichens: A New Source of Antibiotics?

#### IOWA

Davenport  
 Allen, Albert John 17 Davenport Central H.S. 2620 E. 18 St. 52803  
 Onium Group of Acetylcholine

#### KENTUCKY

Erlanger  
 Bailey, Mark Edward 17 Lloyd Memorial H.S. 3160 Hulbert Ave. 41018  
 Interactive Graphics Device for Flat-Screen Panel Display

#### LOUISIANA

Monroe  
 Estopinal, Noel Christopher 17 St. Frederick H.S. 303 Raymond Dr. 71201  
 Novel Solar Energy Heating System

#### MAINE

Milo  
 Graves, Theresa Ann 17 Penquis Valley H.S. 9 Crescent St. 04463  
 Effect of Malathion on the Chlorophyll Content of Algae

#### MARYLAND

Beltsville  
 Golden, Kenneth Morgan 17 High Point Sr. H.S. 9110 Drake Pl., College  
 Relationship of Ablation to Some Meteorological Park 20740  
 Parameters on Martinellis' "Permanent" Snow Bank,  
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Bethesda  
 Mohanty, Nibedita 17 High Point Sr. H.S. 4306 Kenny St. 20705  
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 Treated *Nicotiana tabacum*

Bowie  
 Wickerhauser, Mladen Victor 16 Walter Johnson H.S. 5021 Acacia Ave.  
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Columbia  
 Reingold, Matthew Howard 18 Walt Whitman H.S. 6237 Walhonding Rd.  
 Two Body Problem in Orbit Determination Washington, D.C. 20016

Oxon Hill  
 Mathews, Laura Inslee 17 Bowie Sr. H.S. 12425 Sarah Lane 20715  
 Physical Dynamics Governing the Maidford River Delta

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Rockville  
 Sonntag, Richard Chapman 17 Friendly H.S. 12516 Arrow Park Dr. 20022  
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Silver Spring  
 Kohn, Philip David 17 Winston Churchill H.S. 11519 Gainsborough Rd. 20854  
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Silvers Spring  
 Larkin, Lawrence Iturbe 18 T.S. Wootton H.S. 901 Nelson St. 20850  
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 Suszynski, Cristina Rebecca 17 T.S. Wootton H.S. 1854 Greenplace Terr.,  
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Wooden, Diane Holland 17 T.S. Wootton H.S. 1076 Pipestem Pl. 20854  
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Bernstein, Robert David 17 John F. Kennedy H.S. 914 N. Belgrade Rd.  
 Discounting the Possibility of Nikola Tesla's 20902  
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MASSACHUSETTS

- Acton Boothby, David Jonathan 17 Acton-Boxborough Reg. H.S. 63 Windsor Ave. Pluperfect Numbers 01720  
Hunter, Kevin Dore 17 Acton-Boxborough Reg. H.S. 10 Winter St. 01720 Artificial Intelligence: Relative Learning Rates of Three Computer Programs
- Amherst Phinney, Edward Sterl III 16 Amherst Reg. H.S. 93 Shutesbury Rd. Use of Color Filter Photography in Determining Leverett 01054 the Characteristics of Open Clusters
- Arlington Perrell, Susan M. 17 Arlington H.S. 42 Windmill Lane 02174 Investigation Into the Problem of an Excessive Number of Dead Branches Occurring on Trees in the Niwot Ridge Area
- Harvard Olson, Lorraine Gail 16 The Bromfield School Bolton Rd. 01451 Direct Solar Heating Technology

MICHIGAN

- Ann Arbor Anderson, David Sterling 17 Community H.S. 2110 Vinewood 48104 An Outrageously Discontinuous Function  
Datta, Sumana 16 Huron H.S. 3521 Prestwick Ct. 48105 Induction of Threonine Deaminase in Escherichia coli
- Bloomfield Hills Kapetansky, Robert Alan 17 Cranbrook School 24652 Santa Barbara, Logic Systems: A Non-Numerical System Southfield 48075 of Artificial Intelligence
- Detroit Hawkins, Roland Charles 17 Kettering Sr. H.S. 6101 Crane 48213 Design and Construction of a Helium-Neon Laser and Its Applications
- Flint Bednarski, Mark David 17 Luke M. Powers H.S. 3301 Barth St. 48504 Varying Effects of Herbicides on Non-Target Aquatic Animal Species
- Vassar Engelhardt, Michael Thomas 18 Vassar H.S. 4744 Cottrell Rd. 48768 Determination of Actual Laboratory Angle of Alpha Particle for  $^{24}\text{Mg}(\text{p}, ^4\text{He})^{21}\text{Na}$
- Yale Bertram, Barbara Joan 18 Yale H.S. 113 E. Mechanic St. 48097 Microbial Effects of *Pediococcus cerevisiae* on *Pediococcus pentosaceus*

MINNESOTA

- Minneapolis Schrenk, Janet Lynn 17 St. Anthony Village H.S. 3420 Downers Dr. N.E. Eye Movements in Reading 55418  
Norman, Randy James 17 South H.S. 3505 37th Ave. S. 55406 Coliform Study of the Mississippi River

MISSISSIPPI

- Vicksburg LaGrone, John Donval 17 Warren Central H.S. 206 Lansdown Dr. 39180 Pseudomonas: Growth and Inhibitory Study

MISSOURI

- Arnold Kirkpatrick, Becky Anne 17 Fox Sr. H.S. Rt. #3, Box 206, Imperial Analysis of the Acidic Precipitation in Antonia, Missouri 63052  
Kansas City Medved, Diane Lynn 17 Notre Dame de Sion H.S. 3403 W. 91 St., Leawood, Oil Sorption Capacities of the Aromatic Hydrocarbons Kansas 66206  
St. Joseph Drag, Marlene Diane 17 Bishop LeBlond H.S. 2902 Messanie St. 64501 Action of Light Upon the Visual Pigment Rhodopsin  
Springfield Sullinger, Mark Thomas 17 Glendale Sr. H.S. Rt. #2, Rogersville 65742 Different Groups of Streptococci and Their Beta-Hemolytic Actions on Different Blood Agars

NEBRASKA

- Ogallala Joutras, David William 17 Ogallala H.S. 1215 E. 11 St. 69153 Computer Simulation of the Interaction of Thermal Neutrons and Their Resultant Gamma Rays With Aluminum  
Omaha Drvol, Gregg Steven 17 Northwest H.S. 6123 Lamplighter Dr. 68152 Heating and Cooling Rates of Reflectors and Absorbers in a Gaseous Envelope

- Earl, Renee Antoinette 17 Northwest H.S. 7809 Manderson 68134 Determination of the Degree of Consonance of Musical Intervals

NEW JERSEY

- Bergenfield Ku, Andrew 18 Bergenfield H.S. 90 E. Johnson Ave. 07621 Ammoniogenesis in Hemoglobin Solutions in vitro  
Schmelz, Joan Theresa 17 Bergenfield H.S. 91 Highgate Terr. 07621 The Stereochemical Theory of Odor  
Buchman, Geoffrey Harold 18 Blair Academy Box 208A Pequest Dr., Meteorological Effects of New York City's Belvidere 07823 Thermal Air Pollution  
Hilbrand, Lawrence Evan 16 Cherry Hill H.S. East 1037 Owl Lane 08003 QUBIC: A Game Theory Analysis  
Shames, Spencer Lewis 17 Cranford H.S. 38 Princeton Rd. 07016 Protopsychology  
Lowe, Mary Lorette 17 Columbia H.S. 18 Mayhew Dr., S. Orange 07079 Comparison of Phosphatase Levels Before and After Surgical Treatments for Prostatic Cancer  
Scotch Plains Ruyle, Susan 17 Scotch Plains-Fanwood H.S. 1481 Rahway Rd. 07076 Relationship of Sediment Composition to Gill Maintenance and Habitat Selection in Certain Marine Crustaceans  
Teaneck Fajans, Joel 17 Teaneck H.S. 1133 Magnolia Rd. 07666 Graphics Station for a Data General Nova Minicomputer  
Trenton Mier, Randall Mark 17 Steinert H.S. 447 Norway Ave. 08629 Stroll-Aid for the Blind  
Waldwick Van Eck, Timothy Edwin 17 Waldwick H.S. 19 Grand Ave. 07463 Improper Integrals and Reciprocal Functions  
Wayne Dalnodar, David Charles 18 Wayne Valley H.S. 139 Hillcrest Dr. 07470 Application of the Land Theory to Color Television

NEW MEXICO

- Grants Cronk, Laura Ann 18 Grants H.S. 705 Flagstaff 87020 Stellar Structure  
Gottlieb, Roberta Anne 17 Grants H.S. 101 Horace Rd. 87020 Chemical Research on Lichens  
Kroebel, Bianca Hannelore 17 Grants H.S. 813 Jefferson 87020 Experimental and Theoretical Aspects of Psychokinesis  
Malone, Deborah Ann 17 Grants H.S. 1324 Dona Pl. 87020 Cephalometric Variabilities Determined Via Statistical Data  
Ebinger, Michael Howard 17 Los Alamos H.S. 1335 41 St. 87544 Archaeological Survey of Northern Los Alamos County on the Pajarito Plateau

NEW YORK

- Baldwin Eichenfield, Lawrence Franklin 18 Baldwin Sr. H.S. 1510 Hawkins Ave. Aceto-Orcein Staining of Buccal Smear Chromatin 11510 Masses as a Method for the Detection of Chromosomal Abnormalities of Newborn Human Infants  
Waters, Stephen Michael 18 Baldwin Sr. H.S. 994 Green Pl. 11510 Characterization of Bovine Brain Monoamine Oxidase  
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Baldwinsville Zimba, Carl Gordon 18 Charles W. Baker H.S. 131 Northrop Blvd.. Anti-Resonance Effect in Laser-Enhanced Syracuse 13209 Raman Spectroscopy of Tris (2,4-Pentandionate) Chromim  
Bayside Ausubel, Lawrence Marc 16 Benjamin N. Cardozo H.S. 46-10 216 St. 11361 Unitary Arrays and Square Matrices  
Belkin, Joshua William 16 Benjamin N. Cardozo H.S. 249-15 51 Ave. Effect of a Pulsed DC Field on the Little Neck 11362 Regeneration Axis of *Dugesia tigrina*  
Berger, Michael Alan 17 Benjamin N. Cardozo H.S. 252-32 58 Ave. Triangle Fitting Little Neck 11362

	Carpentieri, Christopher Robert 17 Benjamin N. Cardozo H.S. 256 Ridge Influence of Varying Environmental Phosphate' Rd., Douglaston 11363 Concentrations on the Lipid Production of <i>Chlorella vulgaris</i>	Forest Hills	Tatevossian, Armand Hovsep 17 Forest Hills H.S. 70-41 Harrow St. 11375 Some Consequences of the Banach Fixed-Point Theorem
	Frumer, Sheri Lynn 16 Benjamin N. Cardozo H.S. 61-25 230 St. 11364 Study of the Dorsal Ocelli and Compound Eyes of <i>Musca domestica</i> as Stimulatory Organs	Jamaica	Zelicof, Steven 16 Forest Hills H.S. 110-14 69 Rd. 11375 Extended Altitudes, Angle Bisectors and Medians
	Gimpel, Alan David 17 Benjamin N. Cardozo H.S. 240-55 66 Ave., Douglas Qualitative and Quantitative Assays of Halocarbon ton 11362 Induced Ozone Sinks on UV Irradiated <i>Paramecium caudatum</i>		Glickstein, Alan Russell 17 Jamaica H.S. 69-10 174 St., Flushing 11365 Investigation of Periodic Decimals
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	Loeb, Sandra Gladys 17 Benjamin N. Cardozo H.S. 50-37 245 St., Douglas-Spiral Systems ton 11362		Koff, Howard Daniel 17 Jamaica H.S. 196-07 Keno Ave., Holliswood 11423 The Behavior of Stomates in Green Plants
	Pachtman, Carrie Lee 16 Benjamin N. Cardozo H.S. 61-11 212 St. 11364 Interdependence Within the Cell Cycle of Yeast		Lewis, Scott David 17 Jamaica H.S. 75-24 197 St., Flushing 11366 Effects of Cupric Chloride on the Pumping Rate of Bivalve Molluscs as Indicated by the Clearance of Neutral Red
	Sung, Cynthia 17 Benjamin N. Cardozo H.S. 41-08 243 St., Douglaston Unitary Divisors 11363		Oberon, David 17 Jamaica H.S. 67-06 164 St., Flushing 11365 A Study of the Oscillations of a Subsonic Non-Roll Model Rocket in It's Flight
	Wilson, Jeffrey 17 Benjamin N. Cardozo H.S. 57-04 226 St. 11364 Induction of Antiviral Resistance in Bean Plants by Treatment With Trichothecium Polysaccharide and Its Reversal by Actinomycin D		Seiden, Newton Leo 17 Jamaica H.S. 89-04 183 St., Hollis 11423 Seroepidemiological Survey of the Prevalence and Distribution of Antibodies to the Epstein-Barr Virus
Boiceville	Zaller, Dennis Michael 16 Benjamin N. Cardozo H.S. 57-33 225 St. 11364 Influence of the Nutritional State on Repeated Head Regeneration Rate and Capacity in <i>Dugesia tigrina</i>		Philipps, Mary Ellen 17 Lancaster Central H.S. 16 Clark St. 14086 Amino Acid Content and Regenerative Effects in Planaria
	Liang, Tsan-Yang 17 Oneonta Central School 1188 Grand Concourse #33A, Uptake and Incorporation of 5'-Fluorouracil Into Bronx 10456 Nucleic Acid and the Effect of Temperature on These Parameters	Lancaster	Schwartz, William Alan 17 Massapequa H.S. 20 Amherst Pl. 11758 Transport of Amino Acid Amides and Dipeptide Amides in <i>Escherichia coli</i>
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	Leibnitz, David Paul 17 James Madison H.S. 3936 Bedford Ave. 11229 Acoustical Analog of the Bragg Relationship	New York	Apfeldorf, William Jay 16 Bronx H.S. of Science 50-17 193 St., Flushing Evidence for the Existence of Allelopathic Agents 11365 in Bromus Root Exudates
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	Kanfer, Michael David 16 South Shore H.S. 2759 Strickland Ave. 11234 Neurohistological Tracing of a Microsurgically Injected RNA-Isothiocyanate Complex in <i>Dugesia dorotocephala</i>		Chow, Alice 18 Bronx H.S. of Science 111-49 44 Ave., Corona 11368 Effect of Simultaneous Mutagenesis of Both Sexes of <i>Chlamydomonas reinhardtii</i> on the Transmission of Cytoplasmic Genes
	Siegel, Walter 16 South Shore H.S. 2730 E. 64 St. 11234 Transfinite Sets, Ordinalities and Cardinalities		Cohen, Scott T. 16 Bronx H.S. of Science 277 E. 207 St., Bronx 10467
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	Brown, Persymphonie 17 Andrew Jackson H.S. 225-36 112 Ave., Queens Effects of Carbon Dioxide on <i>Drosophila melanogaster</i> Village 11429		Ghosh, Debmalya 15 Bronx H.S. of Science 37-12 221 St., Queens 11361 Biological Rhythm of Cell Fusion in the Colorless Saprophytic Dinoflagellate <i>Cryptocodinium cohnii</i>
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	Hansen, Craig Cornell 17 Cold Spring Harbor H.S. 30 Glen Way 11724 SPEAK: Computer Speech Synthesis		Liu, Yu-Chin 16 Bronx H.S. of Science 1787 Tenbroeck Ave. 10461 Investigations Into the Presence of DNA Lesions in Reconstituted Viruses
Cold Spring Harbor	Cartabuke, Richard Stephen 17 Commack H.S. South 14 Regina Dr. 11725 Induction of Temperate Bacteriophage from Cariogenic Bacteria		Miroollo, Renato Enrico 16 Bronx H.S. of Science 445 Riverside Dr. 10027 Spectral Theory for NxN Matrices
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	Weinstein, Lawrence Mark 17 Francis Lewis H.S. 69-18 179 St. 11365 Computer Analysis of Local Water Budget Tables Using the IBM 360/70, Terminal Model IBM 3780		Ozick, Daniel Nahum 17 Ramaz School 2 Parkview Ave., New Rochelle 10805 Energization of Bacterial Motility in an Alkaline Environment
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	Pan, Richard Chiang 17 Stuyvesant H.S. 31-79 140 St., Flushing 11354 Homogeneous Functions	Rocky River	Whitney, Gina Marie 17 Magnificat H.S. 3980 Canterbury, N. Olmsted 44070 Effect of a Saline Suspension Medium on the Ability of <u>Micrococcus</u> and <u>Serratia</u> Bacteria to Survive Cobalt-60 Radiation
	Pearson, Starr Patricia 17 Stuyvesant H.S. 534 Jefferson Ave., Brooklyn Properties of the Glutamine-Binding Subunit of Glutamate Synthase 11221	Toledo	Murtagh, James John, Jr. 17 St. Francis de Sales H.S. 2715 Talmadge Rd. Photoreactivation in Ultraviolet-Irradiated <u>Turbatrix aceti</u> 43606
	Stolpen, Alan Howard 17 Stuyvesant H.S. 2060 E. 19 St., Brooklyn 11229 Complete Generalization of Wilson's Theorem		
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	Andrews, Nancy Catherine 17 Nottingham H.S. 615 Allen St. 13210 Isolation and Study of Amoebocytic Proteins in the Blood of <u>Limulus polyphemus</u> That Agglutinate Endotoxin Products of <u>Salmonella typhimurium</u>	Bristol	Scherzinger, Mark Christopher 17 La Salle H.S. 11991 S.E. 67 97222 Method of Joints
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Huron	Belli, Julia Lynn 17 Huron H.S. 815 Salem Dr. 44839 Investigations of <u>Mytilus edulis</u> and <u>Chondrus crispus</u> With Relation to Inorganic Phosphate Exchange and Aquaculture Uses		Tabby, David Stuart 17 Cheltenham H.S. 7746 Clements Rd. 19095 Dynamic Pressure Test Cell for Reverse Osmosis Membranes
			RHODE ISLAND
			Desquenne, Lise Anne 18 Burrillville H.S. Camp Dixie Rd., Pascoag 02859 Discovering New Methods of Typing Blood Using Seed Extracts

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- York Taylor, James Carson 17 York H.S. Rt. #1, Box 158B 29745  
Design and Construction of a Linear Particle Accelerator

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Vitamin E and Its Effects on Protozoa

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Meat-Packing and Processing Plant
- Memphis Snyder, William Chapin 18 Christian Brothers H.S. 327 Kenilworth Pl.  
Footsteps After Fleming: Antibiotics From Fungi 38112
- Murfreesboro Smith, James Radford 17 Oakland H.S. 136 Park Cir. 37130  
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Amoebocyte Migration and Morphogenesis in Dugesia dorotocephala
- Nashville Sonnenborn, John Henry 18 Pearl H.S. 178 Lelawood Cir. 37209  
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Cellulose Fuel Cells
- Waverly Armstrong, George Christopher 17 Waverly Central H.S. 119 Dogwood  
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- Walker, Charles Allen 17 Waverly Central H.S. 205 Hillwood Dr. 37185  
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- Crane Hughes, Jeannie Ben 17 Crane H.S. 309 19 St. 79731  
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Biosynthesis by Serratia marcescens
- Plano Oliver, Patrice Gertrude 17 Jack Yates Sr. H.S. 2902 Cleburne 77004  
Comparative Analysis of the Germination of Salicornia bigelovii,  
Avena sativa, and Glycine max Seeds in Seawater
- San Antonio Loughry, Thomas James 18 Plano Sr. H.S. 103 Ridgeview Dr., Rt. #2  
Information Synthesis for Paleontologists Extracting 75074  
Fossils by Chemical Means From Marine Sediments
- Braniley, John David 17 Keystone School 622 Kampmann Blvd. 78201  
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- Alexandria Richter, William Gerard 17 Bishop Ireton H.S. 7615 Heritage Dr.  
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- Annandale Crofts, Arlin Pink, Jr. Annandale H.S. 7645 Long Pine Dr. Springfield  
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- McCauley, Cynthia Denise 17 John S. Battle H.S. Rt. #5 24201  
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Spot Tests and Neutron Activation Analysis
- Yang, Stephen Clyde 16 Midlothian H.S. 322 Harwick Dr., Richmond 23235  
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- Ligon, Tina Madeline 17 Glenvar H.S. Rt. #3, Box 335 24153  
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and Areas of High Subterranean Radioactivity
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Spider Web Structure vs. Behavior and Environment

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The Tidal Pump: A New Source of Power Seattle 98166
- Fithian, Craig Edward 17 Mt. Rainier H.S. 18653 4 Ave. S.W., Seattle  
Study of Phosphate Retention by Ashland, Nebraska 98166
- Froyland, Todd C. 17 Mt. Rainier H.S. P.O. Box 98407 98188  
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- Popoff, Alex A. 18 Mt. Rainier H.S. 19805 2 Pl. S.W. Seattle 98166  
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- Roberts, Neil Monroe 17 Mt. Rainier H.S. 1125 Rainbow Lane 98188  
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- McElvain, Kenneth Scott 16 Palouse H.S. Box 2133 C.S., Pullman 99163  
Iterative Scheme for Improving State Assignments for  
Synchronous Sequential Circuits
- Spokane Harbert, Bill Perry 17 Joel E. Ferris H.S. S. 5512 Garfield 99203  
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Cyclic Freeze-Thaw in a Paraglacial Environment
- Vancouver Roach, Kelly Brian 17 Joel E. Ferris H.S. E. 2630 19 St. 99203  
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- Brown, Melody Marie 17 Columbia River H.S. 2316 N.W. 101 St. 98665  
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Produced Dog Foods

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Particle Transport Rate by Frontal Gill Cilia

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Effects of an Oil Refinery on a Stream 53074  
Wausau Ehlert, Tamara Kay 18 Wausau West H.S. 518 N. 2 Ave. 54401  
Calcium and Magnesium Ratios of Beachrock, Beachsand and Coral

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Multiplexed Infrared Communication

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Wilkes-Barre      Sulzinski, Michael Anthony 17 Bishop Hoban H.S. 23 Auburn St. 18702

TENNESSEE

Memphis      Snyder, William Chapin, 18 Christian Brothers H. S. 327 Kenilworth Pl. 2211

VIRGINIA

Arlington Leighton, David Trent, Jr. 17 Washington-Lee H.S. 2612 N. Fillmore St.  
22207

Schwebs, Ursula Elfriede 17 Washington-Lee H.S. 2518 N. Quincy St. 22207

**WEST VIRGINIA**

Morgantown      Wargo, Natalie Kaye 17 Morgantown H.S. 1013 Louise Ave. 26505

## *Washington Trip Winners*

of the

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*Thirty-fifth Annual Science Talent Search®*  
*for the Westinghouse Science Scholarships and Awards*

The forty Washington trip winners of the 35th Annual Science Talent Search, among whom \$67,500 of Westinghouse Science Scholarships and Awards will be distributed, represent about 3.9% 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, D.C. 20036

Eleven girls and 29 boys are being invited to Washington, D.C., for an all-expense paid trip March 11-15, 1976, 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 \$10,000 (\$2,500 per year), two \$8,000 (\$2,000 per year), three \$6,000 (\$1,500 per year), four \$4,000 (\$1,000 per year). The remaining 30 contestants will be given Westinghouse Science Awards of \$250 each.

The trip winners are 16 to 18 years of age and come from 30 cities in 17 states. They were picked by the judges from among 14,303 contestants of whom 1,013 completed their entries by writing a report on their science project, submitting personal data and teacher recommendations. Completed entries were received from 47 states, the District of Columbia and Puerto Rico.



SCIENCE SERVICE, INC. - 1719 N Street, N.W. - Washington, D.C. 20036

## Washington Trip Winners

HOME ADDRESS follows name of school

AGE of winner follows name

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Anderson, David Sterling 17 Community H.S. 2110 Vinewood 48104

### MICHIGAN

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Black, James Edward 17 Mission San Jose H.S. 36862 Montecito Dr. 94536  
 Vale, Ronald David 17 Hollywood H.S. 7906 Hillside Ave. 90046  
 Kurth, Rebecca Ann 17 Venice H.S. 3109 Colby Ave. 90066

#### FLORIDA

Schmitt, Peter Harlan 17 Archbishop Curley H.S. 125 N.E. 98 St., Miami Shores 33138

#### ILLINOIS

Victora, Randall Harry 18 Irving Crown H.S. N. River Dr., R.R. #3, Box 303, Algonquin 60102  
 Suzuki, Daniel Thomas 17 Evanston Twp. H.S. 807 Dodge Ave. 60202  
 Janda, David Hubert 17 Lyons Twp. H.S. 5206 S. Howard Ave., Western Springs 60558

#### INDIANA

Budak, Stephen Joseph 18 Marquette H.S. 326 Barker Rd. 46360

#### KENTUCKY

Bailey, Mark Edward 17 Lloyd Memorial H.S. 3160 Hulbert Ave. 41018

#### MARYLAND

Gubrud, Mark Avrum 16 Wilde Lake H.S. 6340 Amherst Ave. 21046  
 Wooden, Diane Holland 17 T.S. Wootton H.S. 1076 Pipestem Pl. 20854

#### MASSACHUSETTS

Boothby, David Jonathan 17 Acton-Boxborough Reg. H.S. 63 Windsor Ave. 01720  
 Phinney, Edward Sterl III 16 Amherst Reg. H.S. 93 Shutesbury Rd., Leverett 01054

Scotch Plains Teaneck Trenton

Ruyle, Susan 17 Scotch Plains-Fanwood H.S. 1481 Rahway Rd. 07076  
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 Berger, Michael Alan 17 Benjamin N. Cardozo H.S. 252-32 58 Ave., Little Neck 11362

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Frumer, Sheri Lynn 16 Benjamin N. Cardozo H.S. 61-25 230 St. 11364  
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Hansen, Craig Cornell 17 Cold Spring Harbor H.S. 30 Glen Way 11724  
 Schwartz, William Alan 17 Massapequa H.S. 20 Amherst Pl. 11758  
 Apfeldorf, William Jay 16 Bronx H.S. of Science 50-17 193 St., Flushing 11365

Augen, Jeffrey Curtis 17 Bronx H.S. of Science 18-15 215 St., Bayside 11360

Chow, Alice 18 Bronx H.S. of Science 111-49 44 Ave., Corona 11368  
 Cohen, Scott T. 16 Bronx H.S. of Science 277 E. 207 St., Bronx 10467  
 Song, Chuan-Luan 17 Bronx H.S. of Science 2565 Marion Ave., Apt. 3C Bronx 10458

Yancopoulos, George Damis 16 Bronx H.S. of Science 57-54 82 St., Elmhurst 11373

Taylor, Denise Anne Maximilian 17 Stuyvesant H.S. 330 Isabella Ave., Staten Island 10306

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 Belli, Julia Lynn 17 Huron H.S. 815 Salem Dr. 44839  
 Murtagh, James John, Jr. 17 St. Francis de Sales H.S. 2715 Talmadge Rd. 43606