Rules and Regulations

THE EIGHTEENTH ANNUAL SCIENCE TALENT SEARCH CONDUCTED BY

SCIENCE CLUBS OF AMERICA, FOR THE WESTINGHOUSE SCIENCE SCHOLARSHIPS
AND AWARDS

ELIGIBILITY

Any boy or girl who is in his last year in an accredited secondary school (public, private, parochial) in the continental United States, including U.S. possessions, who is expected by the certifying school official to complete college entrance qualifications before October 1, 1959, and who has not competed in any previous Science Talent Search is eligible to enter this competition.

Age—There are no age limits in this competition.

Science Clubs of America—It is not necessary to be a member of Science Clubs of America to enter this competition, although creative activity in a science club will aid a contestant's record.

REQUIREMENTS

Each completed entry in the Science Talent Search must consist of three parts:
1. A complete science aptitude examination answer sheet, certified by student and teacher.
2. A personal data blank and secondary school record, filled out by the student, and by his teachers and principal.
3. A report of about 1,000 words on "My Scientific Project," by the student. It should tell what the contestant is doing or plans to do in science in the way of experimentation or other research activity. It should be original, creative and interpretative in character.

Science Talent Search science aptitude examinations and personal data—secondary school record blanks are furnished free of charge to any school official who requests them and who pledges to administer them in accordance with instructions.

SCHOLARSHIPS AND AWARDS

Forty contestants with highest talent as judged by a judging committee on the basis of Science Talent Search examination, scholastic and personal records, reports and any other information assembled by the judges, will be awarded invitations to the Science Talent Institute and all-expense trips (transportation, hotel and other arranged expenses paid) to the place the Institute is to be held, and return. It is planned to hold the Science Talent Institute February 26 to March 2, 1959, at Washington, D. C., unless in the judgment of Science Service it should be held elsewhere or at another time. All contestants invited to the Science Talent Institute will receive the Gold Emblem of Science Clubs of America.

Five of the contestants coming into the Science Talent Institute will be selected by a board of judges to receive four-year Westinghouse Science Scholarships. One of these Westinghouse Science Scholarships is for $7,500 ($1,875 per year), another is for $6,000 ($1,500 per year), a third one is for $5,000 ($1,250 per year), a fourth one is for $4,000 ($1,000 per year), and a fifth one is for $3,000 ($750 per year).

Westinghouse Science Awards of $250.00 each will be awarded to the other 35 contestants.

Honorable mentions will be awarded.

Committees of judges designated by Science Service will judge the contest, and the decision of these judges shall be final in all cases.

CONDITIONS OF SCHOLARSHIPS
AND AWARDS

Each scholarship may be applied toward a course in science or engineering at a degree-granting institution of higher education selected by the winner and approved by a scholarship committee named by Science Service. Science and engineering courses that may be pursued are those encompassed in the fields of activity of the National Academy of Sciences and the National Research Council.

The right and conditions of payment of scholarships shall be determined by the Scholarship Committee.

In the event that the holder withdraws from college work, or if continued use of the scholarship is disapproved by the Scholarship Committee upon report from the college that progress is deemed unsatisfactory to the college, the right of the scholarship holder to receive any further payments shall be forthwith terminated.

The decision of the Scholarship Committee shall in all respects be final.

Westinghouse Science Awards are given to contestants attending the Science Talent Institute in recognition of high attainment and unusual promise in the sciences.

HONORS GROUP

IN

THE 18th ANNUAL

Science Talent Search®

for the

Westinghouse Science Scholarships
and Awards

SCIENCE CLUBS OF AMERICA
Administered By Science Service
1719 N STREET N. W. * WASHINGTON 6, D. C.
The Meaning of Honors in the Science Talent Search

The achieving of Honors in the Science Talent Search, earned by the top 10% of those who complete entries in the Science Talent Search, is an evidence of science ability and interest 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 the 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 this list of 427 honor awards, 40 are being chosen as winners of the Washington trip. Among these $34,350 in scholarships and awards will be distributed. This list of winners is being announced subsequently to the distribution of this list and will be published in the Science News Letter of January 31, 1969, and it will be sent upon request accompanied by a self-addressed stamped envelope.

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

The proportion of boys and girls in this list is determined by the ratio of boys and girls entering the contest. Listed are 84 girls and 333 boys. The girls determine their own chances in the Science Talent Search in accordance with the number that enter. Of the Honors Group, 79% of the boys and 89% of the girls rank in the upper 5% in their high school classes. Among the 427 who won Honors, 340 belong to science clubs of which 173 are affiliated with Science Clubs of America.

The Annual Science Talent Search

The Science Talent Search was the pioneering endeavor to discover at the senior high school level those who have the potentialities to become the research scientists 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 those with research ability in science has become an institution and tradition due to approval from the educational world 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 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 first eighteen Science Talent Searches by the Westinghouse Educational Foundation, an organization endowed by the Westinghouse Electric Corporation for the promotion of education and science.

Science Service, engaged in the interpretation and popularization of science on a broad front, is working, through Science Clubs of America, the annual Science Talent Search. From the newspapers, educators and scientists of America there has been enthusiastic cooperation in this annual activity that means so much to high school seniors interested in science. The Science Talent Search is a continuing opportunity and responsibility of the more than 30,000 science clubs and more than 500,000 members affiliated with Science Clubs of America.

Honors Group

in the Eighteenth Annual Science Talent Search

* indicates girl
HOME ADDRESS is underlined
H. S. indicates High School
AGE of winner follows name
Title of project report submitted is on next line

ALABAMA

Huntsville
Chambers, Charles McKay 17 Huntsville H. S. 1901 Folk Dr.
Design and Construction of Transistorized Servo Mechanisms in Analog Computers

Montgomery
Kirk, Paul Nelson 17 Sidney Lanier H. S. 743 S. Lawrence St. 4
Some Spectroscopic Studies

ARIZONA

Flagstaff
Wilson, Arthur Seymour 16 Flagstaff H. S. Rt. 1, Box 959 C
Milli-Rockets

Phoenix
Ware, Bandle William 17 Cane Back H. S. 2221 E. Medlock Dr.
Aberrant Chromosome Numbers in Cultured Amnion Cells

*Coe, Nancy Forsythe 17 North Phoenix H. S. 1841 North 24th St.
Study of the Circulatory System of Two-Legged Spiders

*Nelson, Patricia Ann Marie 17 North Phoenix H. S. 601 East Cotter St.
Paper Chromatography

Sakata, Matthew K. 17 North Phoenix H. S. 1417 North 11th St.
Semi-Quantitative Analysis of Uranium in Ore Samples by a Chromatographic Method

Brown, Richard Carroll 16 West H. S. 500 West Montebello St.
Study of the Front to Back and the Back to Front Ratios of a Germanium Diode

Cotner, John Rudolph 17 West H. S. 3057 North 19th Ave., Apt. 97
A Method of Determining the Internal Structural Characteristics of Silicon Crystals Using Mass Production Techniques

Reif, Carole Louise 17 West H. S. 2026 West Reno St.
Three-Dimensional Electrophoresis

Zahrt, John David 17 West H. S. 2224 West Indiana St.
Negative Ion Replacement as a Function of "U" Centers in Aikali Metal Halides

Scottsdale
Horning, James Jay 16 Thunderbird Academy Rt. 2, Box 344
pH Determination by the Conductance of Acid Solutions

Tucson
McCoy, Barry Malcolm 18 Catalina H. S. 403 East 4th St.
Electronic Graphing of Fourier Series

ARKANSAS

Mena
Gans, William Edward 17 Mena H. S. 1204 Hickory St.
A Method of Isolation of Organic Chemical Components of Lichens

Mount Home
*Moore, Martha Ella 17 Mountain Home H. S. Gasville
The Dual Nature of Heat

Norphlet
Thibault, Henry Crawford H. 17 Norphlet H. S. P. O. Box 356
Balloon Studies of the Atmosphere and Cosmic Rays

CALIFORNIA

Alhambra
Causey, Robert Louis 17 Mark Keppel H. S. 7551 E. Hellman Ave.
Hyperbolic Functions and Related Infinite Series in the Complex Domain

San Gabriel
Chula Vista
Nolfi, James Robert II 17 Chula Vista H. S. 155 Sierra Way
Techniques for Lunar Exploration

Concord
*Leaver, Sherie Lynne 16 Mt. Diablo H. S. 1318 Grove Way
Electrophoresis in Blood Protein Analysis

El Cajon
Vitter, Charles Frank 17 El Cajon Valley H. S. 165 Lisbon Lane
Preliminary Progress toward Original Interpretation of Extra-Galactic "Red-Shift"
Harbor City  Manning, John Patrick 17  Narbone H.S. 1603 W. 219th St., Torrance
Arranging of Fractions Between 0 and 1 in Ascending Order of Numerical Value

Tombach, June Harald 17  Narbone H.S. 27742 Comestoga Dr., Rolling
Development of a Small Closed Circuit Wind Tunnel

La Mesa Wolf, Michael Robert 17 Helix H.S. 9039 Lemon Ave.
Quantitative Electrical Determination of Dissolved Oxygen Concentration in Liquids

Los Angeles Talmay, Leonard Alan 16 Palisades H.S. 524 N. Poinsetter St. 36
General Form of the Arithmetic Processes and Its Extension to the Process after Raising to a Power

Emmel, Thomas Chadbourne 17 Susan M. Dorsey H.S. 5341 West Blvd. 43
Digestive Processes in the Venus Fly Trap

Los Gatos *Briancourt, Odette Francine 16 Los Gatos H.S. 160 Stacia Rd.
Photography of Microscopic Animals

Manhattan Beach Reger, Larry Herman 16 Mira Costa H.S. 1601 Prospect Ave., Hermosa
Model to Illustrate Gravitational Force Variations and Earth Tides

Mill Valley Wingate, Paul Shawn 16 Tamalpais H.S. 520 Miller Ave. 1
Plasma Jet - High Temperature Ion Beam

Napa Johnson, Stanley Allen 17 Napa Senior H.S. 228 Monte Vista Dr.
The Physical Properties of Myosin

Newport Bradley, Jack Winningham 17 Newport Harbor H.S. 2637 Miramar Dr.,
Comparative Serology in Zoological Taxonomy

San Diego Lyngberg, Carl Lewis 17 San Diego H.S. 1606 Cypress Ave. 3
The Effects of Shifting Primitive Terms on the Structure and Representation of Boolean Algebra

San Francisco Wymore, Charles Elliott 17 Abraham Lincoln H.S. 32 Santa Monica Way 27
Apparatus for Computer Circuitry Research

*Kaufman, Maxine Ann Sandra 17 George Washington H.S. 26 Darrell Pl. 11
Antigelling Effect of Fresh Pineapple on Gelatin

San Jose *Gross, Carol Lynne 17 Andrew P. Hill H.S. 326 Phegan Ave. 12
Induced Variations in Amino Acid Content of Albumin

Santa Barbara Benton, Stephen Anthony 17 Santa Barbara H.S. 46 Pine Dr.
Polarized Light Microscope

Gray, Christopher James Lloyd 17 Santa Barbara H.S. 2190 Alisios Dr., Rolling Friction

*Mathews, Amoretta Jane 17 Santa Barbara H.S. 2195 Anacapa St.
Pipetting Accuracy through Radioisotopes

Newhall, Robert Nelson 17 Santa Barbara H.S. 1220 Dover Rd., A Line Microphone

Overway, Kenneth Richard 17 Santa Barbara H.S. 1402 La Vista Rd.
Relative Solubility of Inode Water and Carbon Tetrachloride

Santa Fe Springs Horn, John Thomas 17 Santa Fe H.S. 15106 Longworth Ave., Norwalk
Factors Affecting Physicochemical Periodicity

Selma Kabo, Shonio 30 Sela Union H.S. 1605 W. Front St., Regeneration of Oxygen Gas from Carbon Dioxide

Tujunga Alderson, Daniel John 17 Verdugo Hills H.S. 6720 Day St.
A Device for the Study of the Interactions of N Bodies Restricted to a Single Plane and Subject to a Non-Newtonian Law of Force

Ventura Kosdon, Franklin Julian 17 Ventura Senior H.S. 250 Seton Hall Dr.
A Year and a Half with Rockets

Travis, Charles Stephen 16 Ventura Senior H.S. 3028 Grove St.
Non-Euclidean Geometry

COLORADO

Denver Waterhouse, William Charles 17 East H.S. 1387 Syracuse St.
Finite Sums of Polynomials

Scheld, Robert Forbes 15 South H.S. 800 S. Fillmore St. 9
An Instantaneous Electronic Grapher

Englewood Zilles, Stephen Norman 17 Cherry Creek H.S. 13 Vista Rd.
Effects of Growing A Plant in an Electric Field

Greeley Jessup, David Maurice 17 Greeley H.S. 1606 23rd Ave.
Tracing Life Histories of Mayflies

CONNECTICUT

East Hampton Jacobson, Charles Curtis 17 E. Hampton H.S. 31 Maple St.
Construction and Operation of a Six-Inch Reflecting Telescope
Indianapolis
Myers, Terry Lewis 17 Arsenal Technical H. S. Box 4742, Rt. 6 27
Radiation-Induced Mortality Rates in Drosophila Melanogaster
Lafayette
*Burghoff, Susan Evelyn 16 Jefferson H. S. R. R. 16
Applications of a Digital Computer to the Solution of Rectangular Games
Dunn, Jon Michael 17 Jefferson H. S. 2715 Union St.
Effect of pH on the Helix of Bacterial Flagella
Martinsville
McLaughlin, Steve Michael 17 Martinsville High S. 310 S. Marion St.
Design, Construction and Utilization of a Bomb Calorimeter
Michigan City
Schumaker, Norman Edwin 18 Isaac C. Elston Senior H. S. 221 S. Dickson St.
Effect of Gibberellic Acid on Geraniums
Muncie
*Grenwald, Dorothy Jean 17 Burns Laboratory H. S. 310 S. Nichols St.
Effect of Chemical Resonance on the Dissociation of Acids and Bases and Chemical Equilibria
Richmond
Efman, Eric Leonard 17 Richmond Senior H. S. 619 Pearl St.
A Paper Electrophoresis Machine
Reeves, Alvin Frederick II 18 Richmond Senior H. S. 425 Pearl St.
Colchicine-Induced Polyplody in Solanum tuberosum
Shelbyville
Allen, Wilson Edwin 17 Shelbyville H. S. 1290 Elm St.
A Videotape with an Internal Amplifier
South Bend
Crisswell, Michael Leiland 17 Central H. S. 1002 N. Adams St. 23
Radiation-Induced Mutations in Drosophila
Joyce, Thomas Edward 18 Central H. S. 1403 Van Buren St. 28
Device for Automatic Crystalization of Soluble Cystine
Soderberg, Donald Nelson 17 Central H. S. 1225 Bixel Ave. 16
Analyzing Earth Materials with Sound
Shapiro, Michael David 17 Riley H. S. 3010 S. 3rd Street 14
Derivation of Rules for Programming the Game of Tic-Tac-Toe
Valparaiso
*Corley, Sue Ann 17 Valparaiso H. S. 1207 Beech St.
Half-Life Determinations of Thermal Neutron Induced Activities

IOWA
Ainsworth
Coon, Sidney Alan 18 Ainsworth Consolidated H. S. Ainsworth
Van de Graaff Generator
Cedar Falls
Eckleman, David Stephen 16 Cedar Falls H. S. 2009 Oakland Ave.
Design and Construction of a Checker-Playing Digital Computer
Cedar Rapids
Davis, Richard Arnold 16 Washington H. S. 714 4th Ave. E. S. E.
Stratigraphic and Paleontological Study of the Area Around Cedar Rapids, Iowa
Iowa City
*Well, Phoebe 17 Iowa City H. S. 803 Fifth Ave.
Studies on the Specificity of Escherichia coli Ribonuclease as Shown by the Use of Related Sugars
Sioux City
Feierfeld, Gerald 17 Heslin H. S. 619 Center St. 3
An Exploration of Sex Theory
Homan, Joseph Michael 17 Heslin H. S. 1911 Douglas St.
Gas Eulsion Chromatography

KANSAS
Anthony
Nordgren, Allan Curtis 17 Anthony Rural H. S. 405 N. Jennings St.
Amalgam Computers
Manhattan
*Olivier, Sara Kathryn 17 Lackey H. S. 830 Houston St.
Finding Orbital Paths of Satellites
Wichita
Hollis, Ralph Leroy, Jr. 17 Southeast H. S. 544 S. Terrace Dr.
Designing, Building, and Flying of a Small Solid-Propellant Rocket

KENTUCKY
Glasgow
Potter, Ronald Lynn 18 Glasgow H. S. R. R. #7
Electronic Indicator for Fluorescence
Louisville
Scudder, Charles Damian III 16 J. M. Atherton H. S. 115 S. Bayly St.
Synthesis of Some Organic Acids

LOUISIANA
Metairie
Cormack, David Bruce 16 St. Martin's Prot. Episcopal School 1737 Pine St.
Lymphatic Permeability to Albunex in New Orleans 16
Ruston
Tabol, Raymond James, Jr. 17 Ruston H. S. 402 W. Alabama Ave.
Experimental Support of the Quantum Theory
Winnfield
Emerson, Sidney Thomas 17 Winnfield H. S. 205 W. Main St.
Workable Audio Console
Westwood  Little, Howard Forbes  17  Westwood Senior H. S.  46 Westchester Dr.
New Method for Making Telescope Mirrors
Manly, Kenneth Fred  17  Westwood Senior H. S.  20 Lanark Dr.
Game-Playing Machines

MICHIGAN
Flint  James, Richard Owen  18  Central H. S.  1118 Remington St.  7
Educational Hypnosis
Steinman, Gary David  17  Northern H. S.  124 W. Jackson St.  5
Control of Polycythemia Vera
Midland  Bennett, Donald Bruce  17  Midland H. S.  6 Lexington Ct.
Principles of a Computer
Fedorewicz, Ronald Joseph  17  St. Mary Cathedral School  715 Cherry St.
Converter to Receive VHF
Traverse City  Gallagher, John Everett  17  Central H. S.  State Park R. R. 4
Electronic Digital Computer

MINNESOTA
Bemidji  *Dearth, Janet Marie  17  Bemidji H. S. R. R. # 3
Crookston  Kronholm, John Scott  17  Central H. S.  121 Hubbard St.
Studies in Microscopy
Minneapolis  *Glover, Claudette Therese  17  St. Margaret’s Academy  4532 Dupont Ave.,
Catalysts - Mysterious Partners in Chemical Reactions
No. 13
Red Wing  Kayser, David Charles  17  Central H. S. Rt. 3, Box 37
Experiments with the Compounds of Boron and a Theory
on the Formation of the Borazole Halides
Effects of Darkness on the Element Absorption Rate
of Tomato Plants Using Radioisotopes

MISSISSIPPI
Jackson  Karow, Armand Monfort, Jr.  17  Provine H. S.  235 Moss Ave.,
Freezing Homographs - Preliminary Study
University  *Tymebs, Penny Lee  16  University H. & R. R. # 5, Box 231, Oxford
Effect of Darkness on the Element Absorption Rate
of Tomato Plants Using Radioisotopes

MISSOURI
Kansas City  Miller, Gary Glenn  17  East H. S.  3003 Topping St.
Some Current Topics of Cosmology
Copaken, Richard Daniel  17  Paseo H. S.  5711 Lydia St.
Proof of New Theory Relating to the Froth Flotation
Mineral Concentration Process
Madden  Chandler, Max Thomsen, Jr.  17  Madden H. S.  611 "S" Highway
Single Electric Calculator Using the Wheatstone Bridge
Neosho  *Adams, Constance Jane  17  Neosho H. S.  324 S. Valley St.
Genetic Comparison of the Sex Ratio in Generations
of Rama sapins and Drosophila melanogaster
St. Louis  Mahon, Michael James  17  St. Louis University H. S.  2532 Salem Rd.
Complete Television System Based upon Professional Signal Standards

MONTANA
Choteau  Koch, Richard Alan  18  Choteau H. S. Box 103
Wood Saacarification

*Balmer, Nancy Jane  17  Great Falls H. S.  2612 Fifth Ave., S.
A Mathematical Approach to Knot Tying
Cromley, Brent Reed  17  Great Falls H. S.  723 Fifth Ave., S.
Hypnotic Sleep
Jordan, Dale Edward  17  Great Falls H. S.  3240 Sixth Ave., S.
An Abstract Algebra
Helena  O’Connell, Richard John  17  Helena Senior H. S.  624 Gilbert St.
Pauli Matrices as an Example of a Group
Missoula  Brown, David Ludvig  17  Missoula County H. S.  664 6th St., E
Conditions Needed for Breaking Winter Dormancy of
Four Bushes in Western Montana

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Fischbach, Ephraim Samuel 16 Yeshiva of Flatbush H.S. 1612 47th St. 4
Obtaining Pure Polystyrene in Liquid Phase Polymerization
Racofsky, Joel Herbert 17 Yeshiva of Flatbush H.S. 438 Beach 142nd St.
Effects of Doses of Ultraviolet Radiation
Neposinski, Queens 94
on the Growth Rate and Nutritional Requirements
of Yeast Cells
Cambria Heights Klothe, Michael Edward 17 Andrew Jackson H.S. 114-98 238th St. 11
Electrolysis of Aqueous Solutions of Organic
Compounds between Carbon Electrodes
Clarence Weilberg, Michael Stephen 16 Clarence Central H.S. 39 White Acres Rd.
An Electrical "Tic-Tac-Toe" Player
Clifton Springs Frohlich, Lawrence Charles 17 Clifton Springs Central H.S. 34 W. Main St.
Planning and Constructing an Eight-Foot Single-Settles Water Wheel
Elmont Peterson, Harold Thomas, Jr. 17 Elmont Memorial H.S. 992 De Witt St.
Determining Efficiency of Paper Chromatographic
Valley Stream
Separation of Inorganic Mixtures
Far Rockaway Caminita, Bruce Matthew 16 Far Rockaway H.S. 330 Beach 143rd St.
An Attempt to Prevent Rusting in C57Bl/6 Mice
Neposinski 94
Rosenfield, Jordan 16 Far Rockaway H.S. 20-26 Seagirt Ave. 91
Fundamental Concepts of Group Theory
Weitzberg, Vicki 17 Far Rockaway H.S. 452 B. 145th St., Rockaway Beach 94
Effects of Coffee on Maze Learning in Rats
Floral Park Myers, Glenn Owen, Jr. 16 Kewansha H.S. 3017 Dutch Bldwy., Elmont
A Tic-Tac-Toe Machine
Forest Hills Gorevic, Peter Dev 16 Forest Hills H.S. 89-14 68th Ave. 75
Environmental Effects on Parthenogenetic Reproduction in Daphnia
Orozag, Steven Alan 16 Forest Hills H.S. 67-63 Groton St. 75
An Electronic Analog Computer for the Solution
of Cubic Equations by Cardan's Formulas
Simon, Sanford Ralph 16 Forest Hills H.S. 67-66 108th St. 75
Preservation of Biological Specimens by a Protecting Coating
Cedar City Bogart, Virgil Dixon 17 Cedar City H.S. 62 Briston Rd.
Construction and Uses of a Centrifuge
Henderson, Dale Barlow 17 Cedar City H.S. 126 Weyford Terr.
Development of a Classroom Cloud Chamber
Great Neck Gelles, Jennifer Morris 17 Great Neck South Senior H.S. 5 Grace Ct., N.
Effects of a Magnetic Field on Electrophoresis of Blood Samples
Henrietta Cartwright, Richard Vance 17 Rush-Henrietta Central School 33 Ravenna Rd., Honeoye Falls
Preservation of the End Opossum of Colorine
Jamaica Bernstein, Steven Leslie 16 Jamaica H.S. 73-33 180th St., Flushing
Scoring Short Answer Tests by Means of an Omimeter
Bodaw, Erik Michael 16 Jamaica H.S. 82-33 169th St. 32
Kynographic Study of Gastric Cynomus Muscle of a Frog
Lepisaro, Peter Carl 16 Jamaica H.S. 186-15 Aberdeen Rd. 32
Remote Tuning for Broadcast Receivers
Marcus, Robert Ira 15 Jamaica H.E. 81-20 169th St. 23
Aspects of the Theory of Numbers
Rodd, Susan Marie 16 Jamaica H.S. 75-54 194th St., Flushing 66
Effects of 4-Hydroxytryptamine on the Activity of
Indoleacetic Acid in the Avena Sativa
Rose, Elihu Isaac 17 Jamaica H.S. 131-07 229th St., Laurelton 13
The Integral Right Triangle
Walsham, Carolyn Emily 16 Jamaica H.S. 86-56 169th St. 32
A Rematological Study of Certain Mammals,
Limited to Complete Blood Counts
Kenmore Lockie, John Alexander, Jr. 17 Kenmore Senior H.S. 229 Irving Terr. 23
Operational Low-Speed Smoke-Wind Tunnel
Lake Svetlikoff, George 17 Sachem Jr.-Sr. H.S. Avenue C, Holbrook
Mathematical Study of Lissajous Figures
Liberty Schue, Howard Hase 17 Liberty Central H.S. Swan Lake Rd.
Ships toward Space Travel and the Space Station
Long Beach Fell, Robert Leslie 16 Long Beach H.S. 920 Beach Blvd., Garfield Mechanical Equiliv of Heat
Long Island Chan, Sucheng 17 William Cullen Bryant H.S. 20-65 16th St., Astoria, S.
Determination of the Midsr-Strips and Other Problems of Topology
New Rochelle Davis, Marion Stanton 16 New Rochelle H.S. 72 Sutton Manor
A Study of Drug Resistance
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New York
Serwer, Philip 16 New Rochelle H.S. 265 Rorer Ave.
New Techniques for Solar Heating of Houses
*Danis, Eileen Carol 15 Bronx H.S. of Science 95 W. 195th St. 68
Electrophoretic Analysis of Different Types of Milk
Gitlin, Todd Alan 16 Bronx H.S. of Science 1392 Metropolitan Ave. 62
Algebraic Solution of Diophantine Equations,
Adapted to an Electronic Computer Program
Lacan, George 15 Bronx H.S. of Science 1392 University Ave. 53
Orbits of Artificial Satellites
Paschoff, Jay Myron 15 Bronx H.S. of Science 1235 Grand Couerce 52
Newtonian Reflecting Telescope with Astro-Camera -
Theory, Design, and Construction
Potzer, Peter Alexander 15 Bronx H.S. of Science 331 E. 71st St. 21
The Helix Tube
Rosenblatt, Matthew 16 Bronx H.S. of Science 1340 Merriam Ave. 53
Trigeminal Nerve System
Sheld, Paul Harold 16 Bronx H.S. of Science 1011 Sheridan Ave. 56
Hormone Effect upon Proliferative Ova
Solier, Raphael Menahem 15 Bronx H.S. of Science 2244 Mickel Ave. 96
Experimental Verification of the Kraus CW Reflection Effect
Weinberg, Ber 16 Bronx H.S. of Science 2481 Davidson Ave. 68
Algal Fixation of Nitrogen in Lichens
*Meier, Louise Margaret 17 Hunter College H.S. 220 E. 74th St.
Some Physical Properties of Zinc and Other Metals
*Shapiro, Marlen 16 Julia Richman H.S. 12-35 35th Ave., Long Island
Is the Sex Ratio of Mus Musculus Altered by
Exposure of the Male to X-Ray Radiation before Mating?
Whalen, James William 17 Mt. St. Michael Academy 22 Halley St., Yonkers
Third Method Single Side-Band Exciter
Baumgarten, Albert Irwin 16 Ramas School 225 W. 86th St. 24
Habit Modification in Catalographic Data
Basciano, Peter Stephen 16 Stuyvesant H.S. 162-28 74th Ave., flushing 66
Ionic Oscillations in Gas Tubes
Bern, Kenneth Murray 17 Stuyvesant H.S. 137-60 323rd St., Laurelton
Concept Formation in the Rat Using
Three Dimensional Variable Patterns
Brown, Theodore Morris 16 Stuyvesant H.S. 42-42 60th St., Elmhurst 73
Electrophoretic Analysis of Proteins Extracted from Sheep Brain
Rosen, Michael A. 16 Stuyvesant H.S. 30 Metropolitan Oval 62
Physical Suspension Cloud Chamber at Room Temperature
Rosenblum, Stephen Saul 16 Stuyvesant H.S. 438 Ramona Ave., Brooklyn 36
Nuclear Track Emulsions
Turner, Leaf 15 Stuyvesant H.S. 715 St. Marks Ave., Brooklyn 16
Low Temperature Hydrogen-Oxygen Fuel Cell
Goldfarb, Joseph 15 Stuyvesant H.S. 2222 Plumb First St., Brooklyn 29
Substitution of Ultrasonics for Heat Energy
in Chemical Actions and Processes
Ormsky Bailey, James Randolph 17 Ormsky Central H.S. Judd Rd.
Electronic Tic-Tac-Toe
Patchogue *Orford, Barbara Ann 16 Patchogue Senior H.S. Long Island Ave., Medford
Plotting a Cubic Equation in Three Dimensions
Queens Village Abrams, Franklin Stephen 16 Martin Van Buren H.S. 219-31 Pec Cook Ave.,
Use of Aescorbic Acid in Beverages
Jamaica Frank, Richard 15 Martin Van Buren H.S. 89-71 217th St. 27
Simultaneous Dual-Proporional Radio Controlled Airplane
Singer, Joel 17 Martin Van Buren H.S. 250-11 Shlom Ave., Bellerson 26
Electrophoretic Separation of Blood Serum and
Its Application in Disease Detection
Oumm, Jeffrey David 16 Martin Van Buren H.S. 80-26 264th St., Floral
Interior Solutions to Right Triangles
Park, Walter Ronald 16 Martin Van Buren H.S. 217-16 Stewart Rd.,
Thermodynamic Stability of Oxides
Sokol, Robert James 17 Monroe H.S. 397 Varnum Rd., flushing 64
New Method of Crystallization from a Superaturated Solution
Scarcella, Richard Moss 16 Scarsdale H.S. 32 Aspen Rd.
Computer Based on Human Thought Processes
Schneider, Donald, Frank E. 18 Most Pleasant H.S. 8 Windsor Dr.,
Mineralogical Computer
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Willow Grove  Yerkey, Alfred Linwood III  17  Upper Moreland H. S.  2700 Carrell Lane  9  Wood Hydrolysis for Sugar Production

RHODE ISLAND

Newport  Bamberg, Paul Gustav, Jr.  16  Rogers H. S.  266 Indian Ave., Middletown  Mathematical Analysis of Batting Performance in the Game of Baseball

Providence  Goldberg, Alfred Lewis  16  Classical H. S.  96 Eaton St.  8  Proving the Optical Purity of d-2-Ethylhydroquinone

Warwick  *Skene, Patricia Lois  17  Warwick Veterans Memorial H. S.  56 Clearwater Carcinogenesis in Chick Cells  St. 6  *Smith, Barbara Mae  17  Warwick Veterans Memorial H. S.  263 Palace Ave.  Theories of Circulation in the Frog's Heart

SOUTH CAROLINA

Columbia  Painter, Gayle Stanford  17  Eau Claire H. S.  5010 Colonial Dr.  3  Construction of a Wilson Cloud Chamber with Solar Camera Control

Orangeburg  Humphrey, David Russell  16  Orangeburg H. S.  615 Park Ave.  A Narrow-Band, Multi-Channel Speech Communication System

SOUTH DAKOTA

Sioux Falls  Deamud, James Robert  16  Washington Senior H. S.  1509 E. 7th St.  Paper Electrophoresis

TENNESSEE

Athens  Dinkworth, William Clifford  17  McMinn County H. S.  Rt. 5  Variations in Concentration of Solutions with Respect to Temperature

Brownsville  Baxter, Robert Lee  17  Haywood County H. S.  Oakston  Design and Construction of a Lunar Probe

Chattanooga  Letcher, John Seymour, Jr.  17  The Baylor School  208 Maiden Lane.  Experimental Linear Induction Accelerator - Design and Operation

Massey, Leonard Daniel, Jr.  16  McClay School  3310 Parker Lane  A Basic Solution to the Problem of Instantaneous Translaminar Communications

Cordell, Pierce Stephen  17  Notre Dame H. S.  407 Brookfield Ave.  11  Electrolymepiscent Panels, with Dielectric Composition and Back Electrode Variations

Elizabethon  Dean, Nathan Wesley  17  Elizabethon H. S.  Rt. 68, Johnson City  Effect of Radioactivity on Euglena Gracilis and Paramecium Caudatum

Knoxville  *Shaffer, Carolyn Jane  17  Central H. S.  1704 Bonta Dr.  8  Color's Effect on Teenagers' Preferences of Fruit Juices

Madisonville  Mason, Robert McSpadden  19  Madisonville H. S.  P.O. Box 294  Electronic "Bug" to Follow Painted Line

Memphis  *Singer, Judith Anne  17  Central H. S.  1740 La Belle St.  14  ART and Radiation

Mayo, James William III  17  Treadwell H. S.  1052 Treadwell St.  12  Design and Construction of a Six-Tech Reflecting Telescope

Nashville  Krohn, Burton Jay  17  Hillsboro H. S.  4003 Estes Ave.  16  The Effect of Ozone on Sodium Hyponitrite

Calwell, John Sam  17  Inaas Litton H. S.  1216 Eastdale Ave.  Generation of the Halogen Fluorides

Oak Ridge  Pollard, Frank Hall  17  Oak Ridge H. S.  191 Outer Dr.  Movement of a Focal Point

Tyner  Johnson, Porter Wear  16  Tyner H. S.  7201 Tyner Rd.  Binary Logarithms

TEXAS

Austin  Huffman, Richard Ellisworth  17  Stephen F. Austin H. S.  2104 Meadowbrook  Theory of Molecular Structure

Baytown  Cornell, Paul Hampton  17  Robert E. Lee H. S.  1910 Florida St.  Cooling Horns with Solar Heat

Snyder, Clinton David  17  Robert E. Lee H. S.  Bayridge Rd., Morgan's Point  Climate and Bird Migration Patterns on the Texas Coast

Dallas  Goren, Robert Nathan  17  Hillcrest H. S.  6954 Northwood St.  25  Application of a Digital Computer to an Original Objective Test Grader

McCoy, James Ernest  17  Thomas Jefferson H. S.  3544 Fontana Dr.  20  Construction of a Reflecting Telescope


Houston  Ashton, Denis Leland  17  San Vicente H. S.  4030 Ferrwood Dr.  21  Detachable Aerodynamic Dart and its Rocket Motor

Katy  May, Curtis Leon  17  Katy H. S.  O. Box 283  Future Commercial Uses for Transistors

LaMarque  Rhysne, Vernon Thomas, Jr.  16  LaMarque H. S.  2511 Grebb St., (Box 233)  Binary Computer

Pampa  Jermigan, Robert Lee  17  Pampa Senior H. S.  421 S. Russell St.  Amino Acid Content of Normal and Tumorous Mouse Tissue

Port Arthur  *Bright, Florence Jane  17  Thomas Jefferson H. S.  732 Eleventh Ave.  Colloidal Electrophoresis  UTAH

Provo  Tolman, Richard Lee  17  Provo H. S.  545 E. 200 North St.  Constitution and Synthesis of Azo Dyes

Salt Lake City  Snow, Marcellus S.  16  East H. S.  1207 First Ave.  3  Differentiation Via Euler's Equation

Lewis, Lawrence Guy  17  Olympus H. S.  2050 Dellmont Dr.  17  Treatment of a Biostem Distribution

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Washington Trip Winners
of the
Eighteenth Annual Science Talent Search®
for the Westinghouse Science Scholarships and Awards

The forty Washington trip winners of the 18th Annual Science Talent Search, among whom $34,250 of Westinghouse Science Scholarships and Awards will be distributed, represent approximately 1% of those who completed entries in this scientific and educational competition.

Designed to discover and develop scientific ability among high school seniors, the Science Talent Search is conducted annually for the Westinghouse Science Scholarships and Awards by Science Clubs of America, administered by Science Service, 1719 N Street, N.W., Washington 6, D.C.

Nine girls and 31 boys (proportion determined by ratio of boys and girls completing entries) are being invited to Washington, D.C., for an all-expense trip February 26 through March 3, 1959, to attend the Science Talent Institute. Here five winners will be selected by the board of judges to receive one of the following Westinghouse Science Scholarships: $7,500 ($1,375 a year), $6,000 ($1,500 a year), $5,000 ($1,250 a year), $4,000 ($1,000 a year), $3,000 ($750 a year). The remaining 35 contestants will be given Westinghouse Science Awards of $250 each.

The trip winners are 15 to 17 years of age and come from 34 cities in 16 states. They were picked by the judges from among 26,195 contestants of whom 4,274 completed their entries by taking a science aptitude examination, obtaining recommendations and writing a report on "My Scientific Project." Examination requests were received from every state.

Of the 40 Eighteenth Annual Science Talent Search winners, 37 ranked in the top 5% of their graduating class and 20 of these were first, second, or third. Most of the winners are members of science clubs and many of them are club presidents, or other officers. Most of their clubs are affiliated with Science Clubs of America. Girls accounted for 22% of the entries this year.
WASHINGTON TRIP WINNERS

CALIFORNIA
Concord *Leaver, Sherie Lynne 16 Mt. Diablo H. S. 1318 Grove Way
Los Angeles Emmel, Thomas Chadbourne 17 Susan M. Dorsey H. S. 5341 West Blvd. 43
San Diego Lyngholm, Carl Lewis 17 San Diego H. S. 1609 Cypress Ave. 3

COLORADO
Denver Waterhouse, William Charles 17 East H. S. 1337 Syracuse St.
Greeley Jessup, David Maurice 17 Greeley H. S. 1605 23rd Ave.

ILLINOIS
Chicago *Anglim, Mary Teresa 17 Aquinas Dominican H. S. 8435 S. Diste Ave. 19
Evaston Higgins, Robert Riceville 16 Evanston Twp. H. S. 1307 Judson Ave.
Swigert, Stevenson Helm 17 Evanston Twp. H. S. 811 Monticello Pl.

INDIANA
Lafayette *Berghorn, Susan Evelyn 16 Jefferson H. S. R. R. 10
Shelbyville Allen, Wilson Edwin 17 Shelbyville H. S. 1230 Elm St.

MARYLAND
Catonsville Grimm, Frank Wayne 17 Catonsville Senior H. S. 59 Edmondson Ridge Rd. 28
Baltimore Gans, Edward 17 Walter Johnson H. S. 5363 Mardyke Lane, Bethesda 14

MASSACHUSETTS
Natick Robinson, Robert William 17 Natice H. S. 1 Murdoch Rd.

MONTANA
Great Falls *Balmer, Nancy June 17 Great Falls H. S. 2612 Fifth Ave., S.
Helena O'Connell, Richard John 17 Helena Senior H. S. 624 Gilbert St.

NEW JERSEY

NEW YORK
Brooklyn Marks, Peter 16 Brooklyn Technical H. S. 166-18 67th Dr., Forest Hills 75
*Dick, Miriam 16 Erasmus Hall H. S. 653 Madison St. 25
Fetell, Arnold Jay 16 Erasmus Hall H. S. 333 Ocean Ave.
Elmont Peterson, Harold Thomas, Jr. 17 Elmont Mem. H. S. 999 DeWitt St., Valley Stream
New Rochelle *Davis, Marion Stanton 16 New Rochelle H. S. 72 Sutton Manor
New York *Daniel, Elieen Carol 15 Bronx H. S. of Science 95 W. 195th St. 68
Gilvin, Todd Alan 16 Bronx H. S. of Science 1961 Metropolitan Ave. 62
Berman, Kenneth Murray 17 Stuyvesant H. S. 138-50 320th St., Laurelton 13
Uniondale Greenhouse, Jeffrey Alain 16 Uniondale H. S. 138 Emery St., Hempstead

OHIO
Chillicothe Schwalbe, Carl Helmuth 16 Chillicothe H. S. 319 Fairway Ave.
Cleveland *Zika, Jeanne Alice 17 Lorain Academy 3780 W. 190th St. 11
Loudonville Kloss, Kenneth Eugene, Jr. 17 Loudonville H. S. 410 N. Union St.

PENNSYLVANIA
Easton Leavitt, Jonathan David 16 Easton H. S. 627 W. Lafayette St.
Philadelphia *E坐ke, Ruth Rhoda 17 Philadelphia H. S. for Girls 4503 N. Ninth St. 41
Pittsburgh Garland, Stephen Jay 17 Mt. Lebanon H. S. 105 Edlan Dr. 16

RHODE ISLAND
Newport Bamberg, Paul Gustav, Jr. 16 Rogers H. S. 266 Indian Ave., Middletown

SOUTH CAROLINA
Orangeburg Humphreys, David Russell 16 Orangeburg H. S. 615 Park Ave.