

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, excluding 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 these three:

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 to 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 time and conditions of payment of scholarships shall be determined by the Scholarship Committee.

In the event that the holder withdraws from collegiate 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 its 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.

1959

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 \$34,250 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, 1959, 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 94 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 172 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 year 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 proud of administering, 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 20,000 science clubs and more than 500,000 members affiliated with Science Clubs of America.

Honors Group in the Eighteenth Annual Science Talent Search®

* indicates girls

H. S. indicates High School

HOME ADDRESS is underlined

AGE of winner follows name

Title of project report submitted is on next line

ALABAMA

Huntsville Chambers, Charles McKay 17 Huntsville H. S. 1901 Polk 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, Randle William 17 Camelback H. S. 3221 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-Lunged Spiders

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

Sakata, Matthew K. 17 North Phoenix H. S. 1417 North 11th St.
Semiquantitative 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

*Relfe, Carole Louise 17 West H. S. 2026 West Roma St.
Three-Dimensional Electrophoresis

Zahrt, John David 17 West H. S. 2224 West Indianola St.
Negative Ion Replacement as a Function of "F" Centers
in Alkali 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. 4037 East 4th St.
Electronic Graphing of Fourier Series

ARKANSAS

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

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

Norphlet Thibault, Henry Crawford II 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 So. San Gabriel

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

Claremont *Gach, Patricia Jane 16 Claremont Senior H. S. 3017 Lansbury St.
Anodizing Aluminum

Concord *Leavér, 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. 1685 Lisbon Lane
Preliminary Progress toward Original Interpretation
of Extra-Galactic "Red-Shift"

Harbor City Manning, John Patrick 17 Narbonne H. S. 1603 W. 219th St., Torrance
Arranging of Fractions Between 0 and 1 in
Ascending Order of Numerical Value

Tombach, Ivar Harald 17 Narbonne H. S. 27742 Conestoga Dr., Rolling
Development of a Small Closed Circuit Wind Tunnel Hills

La Mesa Wolf, Michael Robert 17 Helix H. S. 8039 Lemon Ave.
Quantitative Electrical Determination of Dissolved
Oxygen Concentration in Liquids

Los Angeles Talmy, Leonard Alan 16 Fairfax H. S. 524 N. Poinsettia 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 *Bricmont, Odette Francine 16 Los Gatos H. S. 122 Stacia St.
Photography of Microscopic Animals

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

Mill Valley Wingate, Paul Shawn 16 Tamalpais H. S. 239 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 Bradbury, Jack Winningham 17 Newport Harbor H. S. 2037 Miramar Dr.,
Comparative Serology in Zoological Taxonomy Balboa

San Diego Lyngholm, Carl Lewis 17 San Diego H. S. 1609 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. 2 Santa Monica Way 27
Apparatus for Computer Circuitry Research

*Kaufman, Maxine Ann Sandra 17 George Washington H. S. 28 Darrell Pl. 11
Antigelling Effect of Fresh Pineapple on Gelatin

San Jose *Grosso, Carol Lynne 17 Andrew P. Hill H. S. 326 Phelan Ave. 12
Induced Variations in Amino Acid Content of Algae

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

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

*Mathews, Amoretta Jane 17 Santa Barbara H. S. 2105 Anacapa St.
Pipetting Accuracy through Radioisotopes

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

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

Santa Fe Springs Horn, John Thomas 17 Santa Fe H. S. 12106 Longworth Ave., Norwalk
Factors Affecting Physicochemical Periodicity

Selma Kubo, Shozo 20 Selma 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
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. 1337 Syracuse St.
Finite Sums of Polynomials

Schleif, Robert Ferber 18 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

Fairfield Kmetzo, John William, Jr. 17 Fairfield College Preparatory School
Application of Microwave Techniques to 151 Green Acre Lane
Wavelengths of Approximately 1.36 Meters

Greenwich Rudahl, Kurt Thorsten 16 Greenwich H. S. 527 E. Putnam Ave. 9
Crystal Analysis by X-Ray Diffraction (P. O. Box 668, Old Greenwich)

North Haven Taylor, Laird Edwin 16 North Haven H. S. 1486 Ridge Rd.
Program for a Bridge-Playing Electronic Computer

Rockville *Bloniarz, Helen Barbara 17 Rockville H. S. 4 West Rd.
Growth Boosters - Plant Chemicals

DISTRICT OF COLUMBIA

Washington Barnes, Stanton John 17 Anacostia H. S. 2814 Erie St., S.E. 20
Effects of External Conditions on Iron Corrosion

*Murphy, Carolyn Jean 17 Sidwell Friends School 2919 S. Dakota Ave. 18
The Mathematics of Music

FLORIDA

Coral Gables Conklin, Peter Fischer 16 Coral Gables Senior H. S. 410 Marmore Ave. 46
The Imaginary Binary System

Fiertel, Neil Orin 17 Coral Gables H. S. 537 Marmore Ave.
Crystal Clumping in an Ionic Reaction Is Related to Temperature

Rossmann, Antonio 17 Coral Gables H. S. 7790 Miller Dr., Miami 55
Secondary School Treatment of Theory of Sets and Theory of Probability

Key West Lenkerd, Stinson Haselton 17 Key West H. S. 1603 South St.
Basic Computer Components

Melbourne Womack, Edgar Allen II 16 Melbourne H. S. 359 Dairy Rd.
Coulomb Scattering of High Energy Electrons by Point Nuclei

Tallahassee *Granison, Saranne 17 Leon H. S. 503 S. Copeland St.
Antics of an Ant

Mayo, William Taylor, Jr. 17 Leon H. S. 1548 Lee Ave.
A Homemade Stroboscope

*Potter, Laura Lee 17 Leon H. S. 112 Barbara St.
Cause, Development and Cure of Verrucae

W. Palm Beach Jarvis, John Frederick 17 Palm Beach H. S. 608 29th St.
Development of Satellite Signal Receiving Equipment

Winter Haven *Brooks, Julia Agnes 17 Winter Haven Senior H. S. 3433 Avenue E, N.W.
Studies and Observations of Lepidoptera in Central Florida

GEORGIA

Atlanta *Bowdoin, Lacrechia Ann 17 Henry Grady H. S. 1460 Boulevard N.E. 9
Abnormal Growth in the Earthworm

*Minkin, Anne Sheila 15 Henry Grady H. S. 735 Elkmont Dr. 6
A Statistical Analysis of Background Radiation in Atlanta, Georgia

Byrd, Daniel Madison III 18 Northside H. S. 2800 Queensbury Lane, N.W. 5
Solid Inorganic Rocket Fuels

Cartersville Smith, Frank Dodd, Jr. 17 Cartersville H. S. 79 Cassville Rd.
Nuclear Reactions in the Solar Interior

ILLINOIS

Arlington Heights *Giuliani, Jill Amelia 17 Arlington H. S. 1314 Watling Rd.
The Respiratory Quotient of Mice

Wilmore, James Harlowe 18 Arlington H. S. 729 N. Fernandez St.
Chemical Spectroscopy

Barry *Brown, Elizabeth Louise 17 Barry H. S. R.R. #1
An Experiment in Abstract Mathematics

Canton Rogers, Charles Alva 17 Canton Senior H. S. 919 E. Walnut St.
Working with Lepidoptera

Champaign Roettger, Walter Barackman 17 Champaign Senior H. S. 1114 W. William St.
Producing Controlled Thermonuclear Reactions by the Pinch Effect

Chicago *Anglim, Mary Terese 17 Aquinas Dominican H. S. 8435 S. Dante Ave. 19
What is Topology?

*Leahy, Dolores Mary 17 Aquinas Dominican H. S. 8726 Harper Ave. 19
Effects of Caffein on Fruit Flies

Hoyt, Frederick Bernard 17 Lane Technical H. S. 6624 N. Campbell Ave. 45
Experiments in Hydroponics and Related Fields

Sweig, Stephen Jasper 15 Roger Sullivan H. S. 6500 N. Albany Ave. 45
Sonar of the Bat

Des Plaines McDonnell, Robert Norman 17 Maine Twp. H. S. 530 N. Home Ave.,
Heat of Immersion of Graphite in Polar
and Nonpolar Liquids
*Monahan, Sharon E. 17 Maine Twp. H. S. 950 Third Ave.
Elementary Particles
Sutton, Richard Frederick 17 Maine Twp. H. S. 1438 Hoffman St.,
The Shape of Plane Intersections
Park Ridge

East Peoria Potter, James Martin 17 E. Peoria Community H. S. 123 Michael Ct.
Construction of a VHF Suppressed Carrier Transmitter

Edwardsville *Helmich, Darlene Esther 17 Edwardsville H. S. 721 Sheridan Ave.
Artificial Pollen Tube Growth

Evanston Brusman, Harold Paul 16 Evanston Twp. H. S. 5653 N. Kenmore St.,
Paper Chromatography
Chicago 40
Diller, Robert Francis Burwell 17 Evanston Twp. H. S. 825 Michigan Ave.
Granular Magnetite in Sand - Industrial Applications
Higgins, Robert Bienville 16 Evanston Twp. H. S. 1307 Judson Ave.
Set Theory with Applications to Symbolic Logic
*Meyer, Shierry Jo 17 Evanston Twp. H. S. 1330 Church St.
An Investigation of Chromatographic Applications of Ion Exchange Resins
*Pannwitz, Monica Jean 17 Evanston Twp. H. S. 833 S. Boulevard
Retention of Conditioned Behavior in Insects Through Metamorphosis
Rosenberg, Jay Frank 16 Evanston Twp. H. S. 8625 N. Avers Ave., Skokie
Investigation of Shock Wave Phenomena and Stress
Conditions Associated with an Extremely High-Energy Spark
Swigert, Stevenson Helm 17 Evanston Twp. H. S. 811 Monticello Pl.
Cylindric Projections and their Applications
Webster, James Carson 16 Evanston Twp. H. S. 2424 Noyes St.
Use of Game Theory to Determine Courses of Action

Galesburg Reno, Richard Wayne 17 Galesburg H. S. 79 Arnold St.
Effects of X-Rays upon Bacteria

Glen Ellyn *Drew, Deborah Irene 17 Glenbard H. S. 249 Montclair St.
The Superovulation of Mice and the Culture and
Activation of the Unfertilized Ova

La Grange Rice, Robert Noble 18 Lyons Twp. H. S. 738 S. Catherine St.
Water Evaporation Rate Control
*Huber, Mary Louise 17 Nazareth Academy 22 N. Drexel St.
Electric Hygrometer

Maywood Chmurny, William Wayne 17 Proviso East H. S. 1342 S. Newcastle Ave.,
Study of the Translocation of P-32 in the
Westchester
Cotyledons of the Garden Bean

Skokie Krischke, Ronald Herbert 15 Miles Twp. H. S. 6922 W. Dobson St., Niles 48
Wave Analyzer for Compound Distribution Curves

Spring Valley Birkenbeuel, Richard Edwin 17 Hall H. S. 111 E. Third St.
Possible Correlation between Weather Conditions,
Sunspots and Auroral Displays

Winnetka Scargle, Jeffrey Drexel 17 New Trier Twp. H. S. 606 Forest Rd., Glenview
Bi-Polar Geometry

INDIANA

Bloomington *Brooks, Judith Irene 17 Bloomington H. S. 1514 Maxwell Lane
The Effect of Metallic Ions on the Inhibitory Action of Kanamycin
*Meyer, Evelyn Ruth 17 University H. S. 804 Atwater Ave.
Effects of Radiation on the Heterozygous Offspring of the Fruit Fly

Evansville Blum, Joseph William 18 Bosse H. S. 2108 Bellemeade St.
Nucleonics
Cooper, Michael Townsend 17 Central H. S. 5711 Madison Ave. 15
A Crystallographic Method of Disease Diagnosis

Fort Wayne Gaskill, Jerry William 17 Central H. S. 1327 Zollars St.
Approximation to Euler's Constant by Probability Theory and
Random Numbers Applied to High Speed Electronic Computer

Frankfort Tunis, James Alan 17 Frankfort H. S. R.R. #3
Design of an Infra-Red Guidance System and the
Construction of an Analogous Model

Hammond Bock, Peter Trumbull 17 Hammond H. S. 8340 Walnut St., Munster
Development of an Electronic Remote-Indicating
Liquid Level Measuring Instrument

Hartford City *Atkins, Carrie Frances 17 Hartford City H. S. 1008 W. Elm St.
Examination of Bacterial Mutants Obtained by
Exposure to Ultraviolet Radiation

Indianapolis Myers, Terry Lewis 17 Arsenal Technical H. S. Box #472, Rt. 6 27
Radiation-Induced Mortality Rates in Drosophila Melanogaster

Lafayette *Burghorn, Susan Evelyn 16 Jefferson H. S. R.R. 10
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 McLary, Steve Michael 17 Martinsville H. 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 *Gruenewald, Dorothy Jean 17 Burris Laboratory H. S. 210 S. Nichols St.
Effect of Chemical Resonance on the Dissociation of Acids
and Bases and Chemical Equilibria

Richmond Effmann, 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 Polyploidy in Solanum Nodiflorum

Shelbyville Allen, Wilson Edwin 17 Shelbyville H. S. 1220 Elm St.
A Vidicon with an Internal Amplifier

South Bend Criswell, Michael Leland 17 Central H. S. 1002 N. Adams St. 28
Irradiation-Induced Mutations in Drosophila
Joyce, Thomas Edward 18 Central H. S. 1403 Van Buren St. 28
Device for Automatic Crystallization of Soluble Salts
Soderberg, Donald Nelson 17 Central H. S. 1225 Blaine Ave. 16
Analyzing Earth Materials with Sound
Shapiro, Michael David 17 Riley H. S. 3810 S. St. Joseph St. 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 16 Ainsworth Consolidated H. S. Ainsworth
Van de Graaff Generator

Cedar Falls Ecklein, David Stephen 18 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. 718 4th Ave., S.E.
Stratigraphic and Speleological Study of the Area
Around Cedar Rapids, Iowa

Iowa City *Welt, Phoebe 17 Iowa City H. S. 602 Fifth Ave.
Studies on the Specificity of Escherichia Coli Enzymes
as Shown by the Use of Related Sugars

Sioux City Feierfeil, Gerald 17 Heelan H. S. 619 Center St. 3
An Exploration of Set Theory
Homan, Joseph Michael 17 Heelan H. S. 1911 Douglas St.
Gas Elution Chromatography

KANSAS

Anthony Nordgren, Allan Curtis 17 Anthony Rural H. S. 405 N. Jennings St.
Analog Computers

Manhattan *Olivier, Sara Kathryn 17 Luckey 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 Firing of a Small Solid-Propellant Rocket

KENTUCKY

Glasgow Potter, Ronald Lynn 18 Glasgow H. S. Rt. #3
Electronic Indicator for Fluorescein

Louisville Scudder, Charles Damarin III 16 J.M. Atherton H. S. 115 S. Bayly St.
Synthesis of Some Organic Acids

LOUISIANA

Metairie Cornay, David Bruce 16 St. Martin's Prot. Episcopal School 1737 Pine St.,
Lymphatic Permeability to Albumin
New Orleans 18

Ruston Talbot, 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 Consolette

MAINE

- Augusta White, Robert Bruce 17 Cony H. S. 39 Green St.
Construction of Linear Accelerators
- Bath Soucie, Richard Henry 18 Morse H. S. R. F. D. #1, Box 313
Comparison of Protein Phosphatase Localization and
Activity in Normal and Atrophied Muscle Tissue
- Orono Cocks, Franklin Hadley 17 Orono H. S. 283 Main St.
The Movements of Delicate Vanes Suspended in Partial
Vacuum under the Influence of Radiant Heat

MARYLAND

- Baltimore Roberts, Roger 17 Baltimore Polytechnic Institute 2606 Queen Anne Rd. 16
The Logical "Mouse"
- Jenkins, James McGill 17 Kenwood Senior H. S. 6 Right Rudder Ct. 20
Genetic Analysis of a New Trait Found in *Drosophila Melanogaster*
- Bladensburg Fetrow, Clare Michael, Jr. 17 Bladensburg Senior H. S. 5404 Decatur St.,
A Place for the Amateur in Astronomy Hyattsville
- Isherwood, William Frank 17 Bladensburg Senior H. S. 4304 55th Ave.
Isolation and Detection of Free Radicals
- Wood, John William 17 Bladensburg Senior H. S. 4216 56th Ave.
Minimal Surface Area Experiments with Soap Films
- Catonsville Grimm, Frank Wayne 17 Catonsville Senior H. S. 59 Edmondson Ridge Rd. 28
Unusual Land Snails in Maryland's Susquehanna Valley
- Frederick Tuck, Robert Gough, Jr. 17 Frederick H. S. Point of Rocks
Utilization of Algae for Survival
- Rockville Ganz, Edward 17 Walter Johnson H. S. 6505 Marjory Lane, Bethesda 14
Some Investigations into the Relationship Between
Symbolic Logic and Electronic Switching Networks
- Silver Spring Kantor, Frederick William 16 Montgomery Blair H. S. 2806 Woodstock Ave.
A Definition of "Particle," with a Suggested Relationship to Gravitation

MASSACHUSETTS

- Andover Standish, Thomas Anderson III 17 Phillips Academy 430 Oliver Rd.,
Behavior of a Mercury Drop and Related Phenomena Sewickley, Pa.
- Cambridge Gillespie, Maurice Edward 17 Matignon H. S. 555 Summer Ave., Reading
Construction of a Reflecting Telescope
- Mills, Stephen 16 Rindge Technical H. S. 31 High St. 38
A Study of the Sub-Atomic Particle, the Sigma Hyperon
- Concord Livernash, Stephen Edward 17 Concord H. S. Nashoba Rd.
Speculations in Astronomy
- Holden Cole, Theron Metcalf, Jr. 17 Wachusett Regional H. S. Anderson Ave.
Ammonium Compounds
- Lawrence Coskren, Thomas Dennis 16 Central Catholic H. S. 113 Berkeley St.
Minerals Found in the Woburn-Wilmington-Reading, Massachusetts, Area
- Milton *Butler, Lydia Raguet 17 Milton Academy Mount Desert, Maine
Linkage Studies with the Whirlar Gene in the Mouse
- Natick Robinson, Robert William 17 Natick H. S. 1 Murdock Rd.
Curves of Constant Width
- North Quincy Kalil, Ronald Edward 17 North Quincy H. S. 11 Albany St., Wollaston 70
A Three-Fold Diode Coincidence Circuit
- Pittsfield Goguen, Joseph Amadee, Jr. 17 Pittsfield H. S. 268 Dalton Ave.
An Investigation of Periodic Linear Fractional Transformations
- S. Hadley Falls Dybikowski, James Chester 16 S. Hadley H. S. 8 Lamb St.
Properties of an n-Dimensional Space and the
Polytopes Which Fill the Space
- Springfield Guertin, Richard Leonard 17 Technical H. S. 80 Rochelle St. 9
A Digital Computer
- Swansea Stickler, David Bruce 17 Joseph Case H. S. 67 Lawrence St.
Experiments with Potassium Perchlorate-Asphalt Solid Propellant
- Waltham Grady, Robert Walter 17 Waltham H. S. 84 Lyman St. 54
Determination of the Osmotic Concentration of the
Epidermal Leaf Cells of Carnation - Plasmolytic Method
- Weston *Bump, Susan 17 Weston H. S. 229 Ash St.
Purification and Electron Microscope Study of
Fibrinogen of Some Lower Animal Species
- Reissner, John Eric 17 Weston H. S. 15 Dogwood Rd. 93
Effects of Tranquilizers on Conditioned Behavior Patterns in Mice

- 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
- Saginaw Fedorowicz, 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
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MINNESOTA

- Bemidji *Dearholt, Janet Marie 17 Bemidji H. S. R. R. #3
Study of Leukemia
- Crookston Kronholm, John Scott 17 Central H. S. 121 Hubbard St.
Studies in Microscopy
- Minneapolis *Glover, Claudette Therese 17 St. Margaret's Academy 4822 Dupont Ave.,
Catalysts - Mysterious Partners in Chemical Reactions No. 12
- 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
- St. Paul Friedman, John Robert 17 Alexander Ramsey H. S. 751 Keller Pkwy. 17
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- W. St. Paul Preston, Robert Leslie 16 Sibley Senior H. S. 260 E. Roeller Ave.
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- Jackson Karow, Armand Monfort, Jr. 17 Provine H. S. 235 Moss Ave. 9
Freezing Homografts - Preliminary Study
- University *Tumbleson, Penny Lee 16 University H. S. R. R. #3, 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.
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- Copaken, Richard Daniel 17 Paseo H. S. 5711 Lydia St.
Proof of New Theory Relating to the Froth Flotation
Mineral Concentration Process
- Malden Chandler, Max Thomas, Jr. 17 Malden H. S. 611 "J" Highway
Simple 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 *Homo Sapiens* 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 183
Wood Saccharification
- Great Falls *Balmer, Nancy June 17 Great Falls H. S. 2612 Fifth Ave., S.
A Mathematical Approach to Knot Tying
- Cromley, Brent Reed 17 Great Falls H. S. 722 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 Browman, David Ludvig 17 Missoula County H. S. 664 S. 6th St., E.
Conditions Needed for Breaking Winter Dormancy of
Four Bushes in Western Montana

Sievers, Bruce Ralph 17 Missoula County H. S. 214 Hastings Ave.
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NEBRASKA

Norfolk Gustavson, David Blair 16 Norfolk Senior H. S. 608 S. 9th St.
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Berlin Morin, Leo Gregory 17 Notre Dame H. S. 337 Champlain St.
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Butler Arendt, Richard Dickson 17 Butler H. S. 635 Mountain Rd., Smoke Rise
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Elizabeth Schulman, Lawrence Simon 17 Jewish Educational Center 58 Aldine St.,
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Lakewood Greenberg, William 17 Lakewood H. S. 401 E. 5th St.
Determination of Thermal Neutron Absorption Cross Sections

Madison *Kolb, Cynthia Lee 17 Madison H. S. 67 Green Ave.
Determination of Ionization Constants

Plainfield Lustig, Martin Howard 17 Plainfield H. S. 1355 Whittingham Terr.
High Speed Automatic Telephone Dials

Princeton Vajk, Joseph Peter 16 Princeton H. S. Wallace Rd., Princeton Junction
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Red Bank Dowell, Michael Brendan 16 Red Bank Catholic H. S. 118 Dunbar Ave.,
Some Suggestions on the Nature of Matter Long Branch

NEW MEXICO

Las Cruces Anderson, Christopher Marlowe 17 Las Cruces H. S. 2510 Solano St.
Determination of the Altitudes of Lunar Features

Hanson, John Julian 18 Las Cruces H. S. Box 3, Mesilla Park
Creation of a Vacuum

Los Alamos Shlaer, Robert Michael 16 Los Alamos H. S. 1394 43rd St.
The Plasma Jet

NEW YORK

Albany *Schlesinger, Ann-Louise 16 Albany Academy for Girls 632 Western Ave. 3
The Study of the Dynamics of Algal (Chlorella) Growth

*Koethen, Mary Alice 17 Albany H. S. 80 Ramsey Pl. 8
Determining Equation of Complex Curved Surfaces in Space

Mayer, George Emil 17 Colonie Central H. S. 248 Osborne Rd. 5
Complexes of Tripositive Cobalt

Ardsley Brandon, Paul K. 17 Ardsley H. S. 107 Hilltop Rd.
Inertial Guidance System

Auburn *Bielefeld, Marley Ann 17 East H. S. 174 N. Fulton St.
Crossing African Violets to Produce New Varieties

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*Davison, Marilyn Ann 17 Batavia H. S. 309 Washington Ave.
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*Gershun, Martha Louise 16 Abraham Lincoln H. S. 1650 Ocean Pkwy. 23
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Litt, Lawrence 17 Abraham Lincoln H. S. 2555 West St. 23
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*Tins, Judith Ann 17 Bay Ridge H. S. 1137 82nd St. 28
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Gray, Alan Thomas 17 Brooklyn Technical H. S. 60-02 68th St., Maspeth 78
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Kepke, Bernard Martin 16 Brooklyn Technical H. S. 688 Wyona St. 7
Stability and Flight Characteristics of a Torque-Powered Flight Vehicle

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Blatt, Joel Martin 16 Erasmus Hall H. S. 435 Linden Blvd. 3
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*Blumenfeld, Carol Ann 15 Erasmus Hall H. S. 221 Brooklyn Ave. 13
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*Dick, Miriam 16 Erasmus Hall H. S. 84 Midwood St. 25
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*Feingold, Miriam French 17 Erasmus Hall H. S. 64 Sterling St. 25
Some Effects of Stressful Situations on Swiss Mice

Fetell, Arnold Jay 16 Erasmus Hall H. S. 325 Ocean Ave.
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*Good, Jo-Ellen 16 Erasmus Hall H. S. 21 St. Paul's Ct. 26
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Gottlieb, Kenneth Ira 16 Erasmus Hall H. S. 491 E. 17th St. 26
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*Guterman, Diane Flora 17 Erasmus Hall H. S. 16 Ocean Pkwy. 18
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*Kaufman, Susan Beth 16 Erasmus Hall H. S. 301 Sterling St. 25
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*Kessler, Joyce Susan 16 Erasmus Hall H. S. 195 Argyle Rd. 18
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*Kinstler, Roberta Alice 17 Erasmus Hall H. S. 221 E. 18th St. 26
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Olivo, Richard F. 16 Erasmus Hall H. S. 33 Woodruff Ave. 26
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*Roslow, Ilsa Joan 17 Erasmus Hall H. S. 750 Rugby Rd. 30
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*Rothenberg, Nan Willa 16 Erasmus Hall H. S. 225 Lincoln Pl. 17
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Kamin, Jonathan Liff 15 Fort Hamilton H. S. 6701 Colonial Rd. 20
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*Moore, Margaret Ruth 16 Fort Hamilton H. S. 150 95th St. 9
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Marmell, Howard Michael 16 James Madison H. S. 1441 E. 14th St. 30
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Pollet, Robert James 16 James Madison H. S. 1755 E. 13th St. 29
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Tenen, Stanley Nelson 16 James Madison H. S. 2335 E. 18th St. 29
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Lehy, Michael Saul 16 Midwood H. S. 3347 Bedford Ave. 10
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Shulsky, Abram Nathaniel 16 Midwood H. S. 1366 E. 21st St. 10
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*Berger, Madelene 17 Samuel J. Tilden H. S. 969 Montgomery St. 13
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Harrow, Stuart Elliot 16 Samuel J. Tilden H. S. 558 E. 53rd St. 3
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*Horowitz, Janet Susan 16 Samuel J. Tilden H. S. 809 Lenox Rd. 3
Abnormal Effects of Combustion Products
of Cigarette Paper on the Single Cell

Levine, Robert Aaron 16 Samuel J. Tilden H. S. 554 E. 48th St. 3
Effect of the Juvenile Hormone from Polyphemus Moths
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Muchnick, Richard Stuart 16 Samuel J. Tilden H. S. 2618 Avenue M 10
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Putnoi, Donald William 17 Samuel J. Tilden H. S. 373 E. 96th St. 12
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Tinkler, Michael Phillip 15 Samuel J. Tilden H. S. 4802 Foster Ave. 3
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Fischbach, Ephraim Samuel 16 Yeshiva of Flatbush H. S. 1612 47th St. 4
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Clarence Wolfberg, Michael Stephen 16 Clarence Central H. S. 39 White Acres Rd.
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Clifton Springs Frohlich, Lawrence Charles 17 Clifton Springs Central H. S. 34 W. Main St.
Designing and Constructing an Eight-Foot Single-Return Wind Tunnel

Elmont Peterson, Harold Thomas, Jr. Elmont Memorial H. S. 999 DeWitt St.,
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*Weitzberg, Vicki 17 Far Rockaway H. S. 452 B. 145th St., Rockaway
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Garden City Bogert, Virgil Dixon 17 Garden City H. S. 62 Brixton Rd.
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Henderson, Dale Barlow 17 Garden City H. S. 126 Weyford Terr.
Development of a Classroom Cloud Chamber

Great Neck Gelles, Jeremiah 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 Kavanaugh
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Marcus, Robert Ira 15 Jamaica H. S. 81-20 189th St. 23
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*Rodd, Susan Marlene 16 Jamaica H. S. 75-54 194th St., Flushing 66
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*Waldman, Carolyn Emily 16 Jamaica H. S. 85-56 169th St. 32
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Kenmore Lockie, John Alexander, Jr. 17 Kenmore Senior H. S. 229 Irving Terr. 23
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Lake Svetlichny, George 17 Sachem Jr.-Sr. H. S. Avenue C, Holbrook
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Liberty Schue, Howard Kane 17 Liberty Central H. S. Swan Lake Rd.
Steps toward Space Travel and the Space Station

Long Beach Fell, Robert Leslie 16 Long Beach H. S. 520 Laurelton Blvd.
Mechanical Equivalent of Heat

Long Island *Chan, Sucheng 17 William Cullen Bryant H. S. 20-65 19th St., Astoria 5,
City Variations of the Möbius Strip and Other Problems of Topology L. I.

New Rochelle *Davis, Marion Stanton 16 New Rochelle H. S. 72 Sutton Manor
A Study of Drug Resistance

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Serwer, Philip 16 New Rochelle H. S. 265 Storer Ave.
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*Danies, Eileen Carol 15 Bronx H. S. of Science 95 W. 195th St. 68
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Soifer, Raphael Menahem 15 Bronx H. S. of Science 2224 Mickle Ave. 69
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Weinberg, Eric Stephen 16 Bronx H. S. of Science 2461 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, Marian 16 Julia Richman H. S. 12-35 35th Ave., Long Island
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Whalen, James William 17 Mt. St. Michael Academy 22 Halley St., Yonkers
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Oriskany Bailey, James Randolph 17 Oriskany Central H. S. Judd Rd.
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Patchogue *Orford, Barbara Ann 16 Patchogue Senior H. S. Long Island Ave., Medford
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Queens Village Abrams, Franklin Stephen 16 Martin Van Buren H. S. 219-31 Peck Ave.,
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Singer, Joel 17 Martin Van Buren H. S. 250-11 Shiloh Ave., Bellerose 26
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Schenectady McLeod, Francis Donald, Jr. 18 Mont Pleasant H. S. 8 Windsor Dr.,
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- Snyder Inglehart, Stephen Cowle 17 Amherst Central H. S. 296 Kings Hwy. 26
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- Winer, James Mitchell 17 Amherst Central H. S. 211 Roycroft Blvd. 26
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- Springville Dahlberg, John Edward 17 Griffith Institute and Central School Wyandale Rd.
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- Uniondale Zahler, Warren Leigh 17 Griffith Institute and Central School Boston Cross
Effects of X-Irradiation on Cancerous Tumors Roads, Boston (N.Y.)
- Wallkill Greenhouse, Jeffrey Alan 16 Uniondale H. S. 158 Emery St., Hempstead
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- Westbury Smith, Gilbert Louis 17 Wallkill Central H. S. R. D., Modena
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- Williamsville Adamowicz, Michael 17 Westbury H. S. 80 Urban Ave.
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- Voss, Raymond David 17 Williamsville H. S. 58 Gordon St. 21
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- Chapel Hill Miller, Robert David 17 Chapel Hill H. S. 804 Old Mill Rd.
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- Raleigh Rogers, Andrew Daylon, Jr. 18 Needham Broughton H. S. 4610 Joyner Pl.
Effect of Temperature and Normality Changes Rt. 6
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- Swain, David Wood 17 Needham Broughton H. S. 1516 Jarvis St.
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- Salisbury Feezor, Michael Douglas 17 Boyden H. S. 6 Pine Tree Rd.
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- Winston-Salem Wallace, William Owen 17 R. J. Reynolds H. S. 1901 Angelo St.
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NORTH DAKOTA

- Jamestown Dugan, Robert Frederic 17 Jamestown H. S. 319 6th Ave., S.W.
Effect of Tranquilizers and Alcohol on Learning Ability

OHIO

- Barberton *Wilson, Barbara Allen 17 Barberton H. S. 696 Way St.
Detection of Polarized Light by Insects Which Have
No Need of Navigation Devices
- Canton *Lynch, Mary Elizabeth 17 Central Catholic H. S. 4968 14th St., S.W. 10
Effects of Gibberellic Acid on Algae
- Chillicothe Schwalbe, Carl Hellmuth 16 Chillicothe H. S. 319 Fairway Ave.
Laboratory Dyestuff Synthesis
- Cleveland Grabowski, Ralph Edward 17 Benedictine H. S. 11504 E. Boulevard 5
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- *Zika, Jeanne Alice 17 Lourdes Academy 3789 West 129th St. 11
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- Cleveland Lodish, Harvey Franklin 17 Cleveland Heights H. S. 3614 Washington Blvd.
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- Lorain *Smith, Susan Gayle 17 Lorain H. S. 1358 Hawthorne Ave.
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- Loudonville Kloss, Kenneth Eugene, Jr. 17 Loudonville H. S. 410 N. Union St.
Digital Computer, Using Relays and Rectifiers as Circuit Elements
- North Canton Huth, Bernard Gene 17 Hoover H. S. 351 Willaman St. 20
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- Olmstead Falls Franklin, Frederick Francis, Jr. 16 Olmstead Falls H. S. 7529 Mapleway
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- Parma Lindow, James Thomas 17 Parma Senior H. S. 5848 Ridge Rd. 29
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- *Sepic, Barbara Marie 16 Parma Senior H. S. 2903 Lucerne Ave. 34
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- Shaker Heights *Moore, Mary Louise 18 Shaker Heights H. S. 3691 Rawnsdale Rd. 22
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- Altus Arradondo, John El Roy 17 Altus H. S. P. O. Box 161
A Technique for Iodine Determination in Human Saliva
- Oklahoma City *Coats, Frances Louise 18 Classen H. S. 714 N. E. 19th St. 5
Effects of Physical Forces upon the Skeleton and Skeletal Muscles
- Stanley, Eliot Hungerford 17 Classen H. S. 1009 N. E. 17th St.
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- Ponca City Kinneberg, Keith Fredrik 16 Ponca City Senior H. S. 1016 Poplar St.
Calculation of the Height of a Liquid in a Capillary Tube
- Muchmore, Clyde Alfred 17 Ponca City Senior H. S. 1107 E. Central St.
Au¹⁹⁸ in the Subarachnoid Space of the Dog

OREGON

- Eugene Parsons, Michael Gene 17 Willamette H. S. 3735 Bell Ave.
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- Portland Boylston, Arthur William 16 Cleveland H. S. 3680 S. E. Glenwood St. 2
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- Abington Ellms, Steven Richardson 17 Abington Senior H. S. 674 Tyson Ave.,
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a Michelson-Type Interferometer
- Allentown Dreisbach, Donald Fred 17 Allentown H. S. 916 N. St. Lucas St.
Experiments and Research in Electroluminescence
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- Altoona Hoffman, Peter Duncan 17 Altoona H. S. 1006 20th Ave.
Hydroponics and Plant Health
- Cornwells Sinderbrand, Emmanuel Nathan 17 Bensalem Twp. H. S. 2786 Garden Lane
Design of a High Fidelity Tone Arm
- Easton Leavitt, Jonathan David 16 Easton H. S. 627 W. Lafayette St.
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- Lansdale Rosenberg, Victor 16 North Penn H. S. 421 Pennsylvania Ave.
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- Lima *Hutchison, Sandra June 17 Penncrest H. S. 28 Rampart W., Media, R. D. 26
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- Merion Station *Drummond, Kathleen Mary 17 Mater Misericordiae Academy 219 Strath-
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- *McIlhenny, Mary Katherine 17 Mater Misericordiae Academy 430 Bryan
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- Neffsville Dorwart, William Villee, Jr. 17 Manheim Twp. H. S. 95 W. Roseville Rd.,
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- Perkasie Coll, Ronald 17 Pennridge H. S. 109 N. 7th St.
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- Philadelphia *Entine, Ruth Rhoda 17 Philadelphia H. S. for Girls 4593 N. Ninth St. 41
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- Pittsburgh Hodil, George Raymond, Jr. 17 Avonworth H. S. 6830 Church Ave. 2
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- *Beyer, Elizabeth Mary 17 Crafton H. S. 77 Evans Ave. 5
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- Garland, Stephen Jay 17 Mt. Lebanon H. S. 108 Elatan Dr. 16
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- Pittner, John Richard 17 North Hills H. S. 208 Bronx Ave. 29
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- Reading *Barr, Francia Louise 17 Mt. Penn H. S. 430 N. 25th St.
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- Sharon Hill *Johnke, Mary Ann 17 Holy Child Academy 10 N. Concord Ave., Havertown
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Willow Grove Yergey, Alfred Linwood III 17 Upper Moreland H. S. 2700 Carrell Lane 9
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Newport Bamberg, Paul Gustav, Jr. 16 Rogers H. S. 266 Indian Ave., Middletown
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Warwick *Skene, Patricia Lois 17 Warwick Veterans Memorial H. S. 56 Clearwater
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*Smith, Barbara Mae 17 Warwick Veterans Memorial H. S. 263 Palace Ave.
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Columbia Painter, Gayle Stanford 17 Eau Claire H. S. 5010 Colonial Dr. 3
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Orangeburg Humphreys, David Russell 16 Orangeburg H. S. 615 Park Ave.
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Sioux Falls Deamud, James Robert 16 Washington Senior H. S. 1509 E. 7th St.
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TENNESSEE

Athens Duckworth, William Clifford 17 McMinn County H. S. Rt. 5
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Brownsville Baxter, Robert Lee 17 Haywood County H. S. Stanton
Design and Construction of a Lunar Probe
Chattanooga Letcher, John Seymour, Jr. 17 The Baylor School 208 Maiden Lane,
Experimental Linear Induction Accelerator - Lexington, Va.
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Massey, Leonard Daniel, Jr. 16 McCallie School 3310 Parker Lane
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Electroluminescent Panels, with Dielectric
Composition and Back Electrode Variations
Elizabethton Dean, Nathan Wesley 17 Elizabethton H. S. Rt. #8, Johnson City
Effect of Radioactivity on Euglena Gracilis and Paramecium Caudatum
Knoxville *Shafer, Carolyn Jane 17 Central H. S. 1704 Bonita Dr. 18
Color's Effect on Teenagers' Preferences of Fruit Juices
Madisonville Mason, Robert McSpadden 18 Madisonville H. S. P. O. Box 294
Electronic "Bug" to Follow Painted Line
Memphis *Singer, Judith Anne 17 Central H. S. 1748 La Belle St. 14
AET and Radiation
Mayo, James William III 17 Treadwell H. S. 1052 Treadwell St. 12
Design and Construction of a Six-Inch Reflecting Telescope
Nashville Krohn, Burton Jay 17 Hillsboro H. S. 4002 Estes Ave. 12
The Effect of Ozone on Sodium Hypochlorite
Caldwell, John Sam 17 Isaac Litton H. S. 1216 Eastdale Ave. 6
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 Ellsworth 17 Stephen F. Austin H. S. 2104 Meadowbrook
Theory of Molecular Structure St. 3
Baytown Cornell, Paul Hampton 17 Robert E. Lee H. S. 1910 Florida St.
Cooling Homes 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. 6254 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

Newton, Michael John 17 Thomas Jefferson H. S. 4106 Clover Lane 20
Time Lapse Photography
Garland Craft, Randal Robert, Jr. 17 Garland H. S. 904 Treasure Rd.
Nuclear Power in Aviation
Houston Ashton, Denis Leland 17 San Vacinto H. S. 4030 Fernwood Dr. 21
Detachable Aerodynamic Dart and Its Rocket Motor
Katy May, Curtis Lavon 17 Katy H. S. P. O. Box 623
Future Commercial Uses for Transistors
LaMarque Rhyne, Vernon Thomas, Jr. 16 LaMarque H. S. 2511 Grebb St. (Box 223)
Binary Computer
Pampa Jernigan, 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 Delmont Dr. 17
Treatment of a Binomial Distribution

VIRGINIA

Arlington Hogan, Edward Merrick 17 Washington-Lee H. S. 3127 N. Pollard St. 7
Mathematical Analysis and Construction of the Klydonograph
Newman, Robert Chapman 17 Washington-Lee H. S. 1823 N. Nelson St. 7
Light - Wave or Particle?
Shaker, Richard John 16 Washington-Lee H. S. 3106 N. 7th St. 1
Graphing of Tertiative Equations
Charlottesville *Bowler, Alicia Inez 16 Jackson P. Burley H. S. 302 Eighth St., N.W.
Speeding Up Growth of Transplanted, Non-Malignant
Breast Tumor in the Female Rat
Hampton Harrison, Benjamin 17 Hampton H. S. 4609 Victoria Blvd.
Evolution of the Gastropod Shell
McLean Schmidt, Dorn Lewis 16 McLean H. S. 90 Wrightson Dr.
The Neo-Brachyt Reflector
Souders, John Martin 17 McLean H. S. Rt. #1, Box 425, Vienna
Probability and Its Application
Newport News Hacker, Carl Sidney 17 Newport News H. S. 218 Chesterfield Rd., Hampton
Effect of Various Types of Background Sounds on Study

WASHINGTON

Richland Borasky, Maurice Edward 16 Columbia H. S. 2006 Tinkle St.
A Binary Abacus
Seattle Moriyasu, Eiichi 17 J. A. Garfield H. S. 520 25th Ave., S. 44
Experimental X-Ray Generator
Spokane Seeley, Elmer Stephen 17 Lewis and Clark H. S. 2826 S. Manito Blvd. 35
Solving a System of Three Quadratic Equations by
Means of a Three-Dimensional Graph
Walla Walla Ekstrom, Philip Allan 17 Walla Walla H. S. 1426 Olive St.
Development of a Telemetry System for Small Rockets

WEST VIRGINIA

Charleston Bowman, Henry Woods 17 Charleston H. S. 1528 Kanawha Blvd., E. 1
Reducing Frictional Heat on Airfoils in Rarefied Gases
Galinsky, Norman Merl 16 Charleston H. S. 1528 B. Lewis St. 1
Chromatographic Adsorption and Ionic Movement
Johnston, George Taylor III 16 Charleston H. S. 1842C Oakridge Dr. 1
Electronic Production of Geometric Loci
Morgantown Gibbard, Allan Fletcher 16 Morgantown H. S. 529 Lake St.
Thermal Effects of the Precipitation of Magnesium Phosphate
St. Albans Jarrett, Eugene Lawrence 16 St. Albans H. S. 2317 Washington Ave.
How Big Is a Molecule?

WISCONSIN

Kenosha Beck, Peter Anders 17 Mary D. Bradford H. S. 6841 Fifth Ave.
Curing Times for Epoxy Resins

Marshfield Gates, Ronald Eugene 17 Columbus H. S. 408 W. 14th St.
Biochemistry of Vinegar

Milwaukee Conigliaro, Peter James 16 Messmer H. S. 5131 N. 65th St. 18
Preparation of Plastics from Phenol and Formaldehyde

*Armstrong, Susan Jean 17 Nicolet H. S. 113 Orchard St., Thiensville
The Learning of Planaria

Fritz, Rudolph Otto 17 Rufus King H. S. 4376 N. 30th St. 16
Effects of Alternating Current on a Phosphor

Henkel, Dennis Phil 16 Rufus King H. S. 161 N. Story Pkwy. 8
Experimental Verification of Geometric Theorems

Fruehwirth, Horst Herbert 17 Rufus King H. S. 417 W. Hadley St. 12
Visualizing Sections of Bodies of Revolution

Pewaukee Shong, David Westly 17 Pewaukee H. S. 1072 Peterson Dr.
A Simulated Gravitational Field

STATE SCIENCE TALENT SEARCHES

All State Science Talent Searches are authorized by special arrangement with Science Clubs of America. Those desiring information on or details of the results of State Science Talent Searches should send their inquiries to the Directors in the respective states. For a prompt reply, send a stamped, self-addressed envelope with your inquiry.

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Arkansas: Arkansas Academy of Science
Dr. Leo Paulissen, Asst. Prof. of Bacteriology, University of Arkansas, Fayetteville

Connecticut: Connecticut Academy of Arts and Sciences
Dr. David J. Blick, Assoc. Prof. of Science Education, University of Connecticut, Storrs

District of Columbia: Washington Academy of Sciences
Dr. Leo Schubert, Chm., Div. of Nat. Sciences and Math., American University, Washington 16, D. C.

Florida: Florida Foundation for Future Scientists
Dr. Luther Arnold, College of Education, University of Florida, Gainesville

Georgia: Georgia Academy of Science
Miss Emily Simmons, Science Teacher, McEachern High School, Powder Springs

Idaho: Idaho Academy of Science
Mrs. Cornelia Jean Munroe, Department of Biology, Lewis and Clark Normal School, Lewiston

Illinois: Illinois State Academy of Science
Dr. G. R. Yohe, State Geological Survey, Natural Resources Bldg., Urbana

Indiana: Indiana Academy of Science
Mr. Richard W. Schulz, Dept. of Physics, Purdue University, Lafayette

Iowa: Iowa Academy of Science
Dr. F. E. Brown, Professor of Chemistry, Iowa State College, Ames

Kansas: Kansas Academy of Science
Dr. S. Winston Cram, Chm., Physical Science Div., Kansas State Teachers College, Emporia

Maine: University of Maine
Dr. George T. Davis, Assoc. Prof. of Education, University of Maine, Orono

Maryland: Maryland Academy of Sciences
Dr. Thomson King, Enoch Pratt Free Library Bldg., Baltimore 1

Michigan: Michigan Academy of Sciences, Arts, and Letters
Prof. C. L. Schloemer, 146 Natural Science Bldg., Michigan State University, E. Lansing

Minnesota: Minnesota Academy of Science
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Montana: Montana State College
Dr. Adrien L. Hess, Assoc. Prof. of Mathematics, Montana State College, Bozeman

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Dr. Burrell Wood, Professor of Chemistry, New Mexico Institute of Mining and Technology, Socorro

North Carolina: North Carolina Academy of Science
Dr. Herbert Speece, Dept. of Mathematics, North Carolina State College, Raleigh

North Dakota: North Dakota Academy of Science
Dr. R. E. Dunbar, Dean, School of Chemical Tech., North Dakota Agricultural College, State College Station, Fargo

Oklahoma: Oklahoma Science Service
Dr. Horace H. Bliss, Assoc. Prof. of Chemistry, University of Oklahoma, Norman

Pennsylvania: Pennsylvania Academy of Science
Dr. William Uricchio, Head, Dept. of Biology, Mount Mercy College, Pittsburgh 13

Rhode Island: Brown University
Dr. J. W. Kling, Dept. of Psychology, Brown University, Providence 12

South Carolina: South Carolina Academy of Science
Prof. H. F. Trotter, Dept. of Physics, University of South Carolina, Columbia 1

South Dakota: South Dakota State College
Mr. Kenneth E. Howard, Asst. Prof. of Chemistry, South Dakota State College, Brookings

Tennessee: Tennessee Academy of Science
Mr. James L. Major, Chemistry and Physics Teacher, Clarksville H. S., Clarksville

Texas: Texas Academy of Science
Dr. Wayne Taylor, Asst. Prof. of Education, Extension Div., University of Texas, Austin

Utah: Utah Academy of Sciences, Arts, and Letters
Dr. Russell H. Hendricks, 2626 Beverly Dr., Salt Lake City

Vermont: University of Vermont
Dr. G. Chapman Crooks, Prof. of Chemistry, University of Vermont, Burlington

Virginia: Virginia Academy of Science
Mr. J. C. Holmes, Research and Development Dept., Philip Morris, Inc., P. O. Box 1895, Richmond

West Virginia: West Virginia Academy of Science
Mr. Douglas B. Williamson, Asst. Prof. of Physics, West Virginia University, Morgantown

Wisconsin: Wisconsin Academy of Science
Dr. Daniel Q. Thompson, Assoc. Prof. of Biology, Ripon College, Ripon

TENNESSEE

Chattanooga Letcher, John Seymour, Jr. 17 The Baylor School 208 Maiden Lane, Lexington, Va.
Massey, Leonard Daniel, Jr. 16 McCallie School 3310 Parker Lane

TEXAS

Baytown Corneil, Paul Hampton 17 Robert E. Lee H. S. 1910 Florida St.

WISCONSIN

Marshfield Gates, Ronald Eugene 17 Columbus H. S. 408 W. 14th St.
Milwaukee Henkel, Dennis Phil 16 Rufus King H. S. 161 N. Story Pkwy. 8

* indicates girls
H.S. indicates High School

HOME ADDRESS follows name of school
AGE of winner follows name

SCIENCE CLUBS OF AMERICA - 1719 N Street, N.W. - Washington 6, D. C.

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 2, 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 (\$1,875 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 28,195 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 Chadbourn	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.	1606 23rd Ave.

ILLINOIS

Chicago	*Anglim, Mary Terese	17	Aquinas Dominican H. S.	8435 S. Dante Ave.	19
Des Plaines	McDonnell, Robert Norman	17	Maine Twp. H. S.	530 N. Hudson Ave., Park Ridge	
Evanston	Higgins, Robert Bienville	16	Evanston Twp. H. S.	1307 Judson Ave.	
	Swigert, Stevenson Helm	17	Evanston Twp. H. S.	811 Monticello Pl.	

INDIANA

Lafayette	*Burghorn, Susan Evelyn	16	Jefferson H. S.	R. R. 10
Shelbyville	Allen, Wilson Edwin	17	Shelbyville H. S.	1220 Elm St.

MARYLAND

Catonsville	Grimm, Frank Wayne	17	Catonsville Senior H. S.	59 Edmondson Ridge Rd.	28
Rockville	Ganz, Edward	17	Walter Johnson H. S.	6505 Marjory Lane, Bethesda	14

MASSACHUSETTS

Natick	Robinson, Robert William	17	Natick H. S.	1	Murdoch Rd.
Pittsfield	Goguen, Joseph Amadee, Jr.	17	Pittsfield H. S.	268	Dalton Ave.

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

Princeton	Vajk, Joseph Peter	16	Princeton H. S.	Wallace Rd., Princeton Junction
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NEW YORK

Brooklyn	Marks, Peter	16	Brooklyn Technical H. S.	108-19 67th Dr., Forest Hills	75
	*Dick, Miriam	16	Erasmus Hall H. S.	84 Midwood St.	25
	Fetell, Arnold Jay	16	Erasmus Hall H. S.	325 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	*Danies, Eileen Carol	15	Bronx H. S. of Science	95 W. 195th St.	68
	Gitlin, Todd Alan	16	Bronx H. S. of Science	1641 Metropolitan Ave.	62
	Berman, Kenneth Murray	17	Stuyvesant H. S.	137-60 232nd St., Laurelton	13
Uniondale	Greenhouse, Jeffrey Alan	16	Uniondale H. S.	158 Emery St., Hempstead	

OHIO

Chillicothe	Schwalbe, Carl Hellmuth	16	Chillicothe H. S.	319 Fairway Ave.
Cleveland	*Zika, Jeanne Alice	17	Lourdes Academy	3789 W. 129th St.
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	*Entine, Ruth Rhoda	17	Philadelphia H. S. for Girls	4593 N. Ninth St.	41
Pittsburgh	Garland, Stephen Jay	17	Mt. Lebanon H. S.	108 Elatan 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.
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