DOCUMENT RESUME

ED 313 232 SE 051 041

AUTHOR Carter, Constance, Comp.
TITLE Space Science Projects. LC Science Tracer Bullet No. TB-89-3.
INSTITUTION Library of Congress, Washington, D.C. National Referral Center for Science and Technology.
PUB DATE Mar 89
NOTE 17p.; For another Library of Congress bibliography on space science projects, see ED 288 716.
PUB TYPE Reference Materials - Bibliographies (131)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Bibliographies; *Elementary School Science; Elementary Secondary Education; Literature Reviews; Reference Materials; *Science Materials; *Science Projects; Science Teachers; *Secondary School Science; *Space Sciences

ABSTRACT

This publication aims to assist elementary and secondary school students and teachers in planning, preparing and executing projects in the space sciences. Sources in other areas of science and on science fairs themselves are listed in "Science Fair Projects" (LC Science Tracer Bullet 88-4). This compilation is not intended to be a comprehensive bibliography, but is designed to put the reader "on target." Categories include: subject headings; basic texts; specialized texts; classroom experiments and activities; background reading; related titles; handbooks and encyclopedias; bibliographies; book/film reviews; abstracting and indexing services; journals; representative journal articles; selected pamphlet materials; and additional sources of information. Each entry has the name of the author, title, publisher, year, call number, and a brief summary. (YP)

LC Science Tracer Bullet

Science Reference Section, Science and Technology Division
Library of Congress, 10 First Street, S.E., Washington, D.C. 20540

ISSN 0090-5232

SPACE SCIENCE PROJECTS
Compiled by Constance Carter

TB 89-3 **March 1989**

SCOPE: Sources to assist elementary and secondary school students and teachers in planning, preparing and executing projects in the space sciences. Sources in other areas of science and on science fairs themselves are listed in Science Fair Projects (LC Science Tracer Bullet 88-4). This compilation is not intended to be a comprehensive bibliography, but is designed--as the name of the series implies--to put the reader "on target."

INTRODUCTION

Moulton, Robert R. First to fly. Foreword by James A. Abrahamson. Minneapolis, Lerner Publications Co., c1983. 119 p. QL496.7.M68 1983
An account of 18-year-old Todd Nelson's experiment, "Insect in Flight Motion Study," which was the first student experiment ever to fly aboard a manned space shuttle flight.

SUBJECT HEADINGS used by the Library of Congress, under which books on space science projects can be located in most card, book, and online catalogs, include the following:

ASTRONAUTICS--EXPERIMENTS (Highly relevant)
ASTRONOMY--EXHIBITIONS (Highly relevant)
ASTRONOMY--EXPERIMENTS (Highly relevant)
EARTH SCIENCES--EXPERIMENTS (Highly relevant)
SCIENCE--EXHIBITIONS (Highly relevant)
SCIENCE--EXPERIMENTS (Highly relevant)
See also subdivision EXPERIMENTS under subject headings of particular interest, such as AIR, FLIGHT, PHYSICS
SCIENCE PROJECTS--(Highly relevant)
SPACE FLIGHT--EXPERIMENTS (Highly relevant)
SPACE SCIENCES--EXPERIMENTS (Highly relevant)
SPACE SHUTTLES--EXPERIMENTS (Highly relevant)
CLOSED ECOLOGICAL SYSTEMS (SPACE ENVIRONMENT) (Relevant)
COSMIC PHYSICS (Relevant)

MANNED SPACE FLIGHT (Relevant)
OUTER SPACE--EXPLORATION (Relevant)
ROCKETS (AERONAUTICS)--(Relevant)
SCIENCE--STUDY AND TEACHING (Relevant)
See also subdivisions STUDY AND TEACHING, or PROBLEMS, EXERCISES, ETC., or AMATEURS' MANUALS under subject headings of interest, such as ASTRONOMY, ASTROPHYSICS, SPACE SCIENCES, etc.
SKYLAB PROGRAM (Relevant)
SPACE BIOLOGY (Relevant)
SPACE MEDICINE (Relevant)
SPACE STATIONS (Relevant)
SPACE VEHICLES (Relevant)
SPACELAB PROJECT (Relevant)
SPACE INDUSTRIALIZATION (Related)
RESEARCH--METHODOLOGY (More general)

BASIC TEXTS

Culver, Roger B. An introduction to experimental astronomy. San Francisco, W. H. Freeman, c1984. 196 p. QB62.7.C84 1984

Gardner, Robert. Projects in space science. New York, J. Messner, 1988. 144 p. QB500.264.G37 1988
Experiments relating to the origin of the solar system, the laws of motion, natural forces affecting orbiting objects, man's future in space, and other aspects of space science are discussed.

Greenleaf, Peter. Experiments in space science. New York, Arco Pub., c1981. 166 p. Pamphlet box*
Edition for 1969, by S. Engelbrektson and P. Greenleaf, published under title Let's explore outer space.
Instructions for conducting a variety of experiments and observations with simple equipment to reveal basic facts about the moon, stars, planets, solar system, comets, meteors, and rocketry.

Loiry, William S. Winning with science: the complete guide to science research and programs for students. Sarasota, Fla., Loiry Pub. House, c1983. 439 p. Q180.55.M4L64 1983*
Includes bibliographical references and index.

The Long duration exposure facility (LDEF): mission 1 experiments. Edited by Lenwood G. Clark and others. Washington, Scientific and Technical Information Branch, National Aeronautics and Space Administration; Springfield, Va., for sale by the National Technical Information Service, 1984. 189 p. (NASA SP-473) QB500.264.L66 1984

McKay, David W., and Bruce G. Smith. Space science. New York, F. Watts, 1986. 127 p. QB500.264.M36 1986
Ideas and instructions for a variety of science projects that examine the characteristics of the space environment and consider forces such as gravity, magnetism, and buoyancy.

*Available in reference collection, Science Reading Room

Rosenfeld, Sam. Science experiments for the space age. Irvington, N.Y., Harvey House, 1972. 190 p. TL794.3.R68
Bibliography: p. 185-186.
Experiments which can be done at home demonstrate principles of space technology.

Simon, Seymour. How to be a space scientist in your own home. New York, Lippincott, c1982. 83 p. QB500.S545 1982

Vogt, Gregory. The space shuttle. New York, F. Watts, 1983. 122 p.
Includes bibliographical references and index. QB500.264.V63 1983
Discusses experiments proposed by high school students that have been performed aboard Skylab and gives advice to those interested in similar space research competitions.

SPECIALIZED TEXTS

Apfel, Necia H. Astronomy projects for young scientists. New York, Arco Pub., c1984. 122 p. QB62.7.A64 1984
Instructions for a variety of experiments in astronomy including making a telescope, building a planetarium, measuring the circumference of the Earth, and detecting cosmic rays.

Ardley, Neil. Exploring magnetism. London, New York, F. Watts, 1983. 32 p. QC755.3.A73 1983
Explains the basic principles of magnetism and suggests a variety of experiments that use magnets.

Banks, Michael A. Countdown: the complete guide to model rocketry. Blue Ridge Summit, Pa., Tab Books, c1985. 212 p. TL844.B36 1985
Bibliography: p. 196-197.

Gatland, Kenneth W. The young scientist book of spaceflight. Saint Paul, EMC Corp., c1978. 32 p. TL793.G343 1978
Describes the spacecraft man has put into space from the V-2 rocket to the present. Includes related experiments and instructions for making models of two spacecraft.

Lunetta, Vincent N., and Shimshon Novick. Inquiring and problem-solving in the physical sciences: a sourcebook. Dubuque, Iowa, Kendall/Hunt Pub. Co., c1982. 202 p. Q182.3.L86 1982*

Mayer, Ben. Starwatch. New York, Perigee Books, 1984. 144 p. QB63.M445 1984

Petty, Kate. Build your own space station. New York, F. Watts, 1985. 30 p. TL844.P48 1985

Sweet potato for space missions--controlled environmental life support systems. Editors, Walter A. Hill, Philip A. Loretan, Conrad K. Bonsi. Tuskegee Institute, Ala., Carver Research Foundation of the Tuskegee Institute, George Washington Carver Agricultural Experiment Station, c1984. 81 p. (George Washington Carver Agricultural Experiment Station monograph, #1) SB211.S9S93 1984 and Pamphlet box*
Bibliography: p. 67-81.

Trowbridge, Leslie W. Experiments in meteorology: investigations for the amateur scientist. Garden City, N.Y., Doubleday, 1973. 270 p. Bibliography: p. 255-259. QC863.4.T76*

Walpole, Brenda. Air. New York, Warwick Press, 1987. 40 p. QC161.2.W35 1987

Discusses the properties of air and gives instructions for a variety of experiments using simple materials.

CLASSROOM EXPERIMENTS AND ACTIVITIES

Aviation science activities for elementary grades. Rev. 1983. Washington, Office of Public Affairs, Aviation Education Programs, Federal Aviation Administration, U.S. Dept. of Transportation, 1985. 33 p. Pamphlet box*
"GA-20-30."

Challand, Helen J. Activities in the earth sciences. Chicago, Childrens Press, c1982. 93 p. QB46.C44 1982

Cole, Peggy R., and Gerald L. Mallon. "One planetarium--to go!" Science teacher, v. 54, Mar. 1987: 25-27. Q181.S38

Fraknoi, Andrew. Universe in the classroom: a resource guide for teaching astronomy and instructor's manual for Universe by William J. Kaufmann, III. New York, W. H. Freeman, c1985. 269 p. QB61.F73 1985

Get Away Special Experimenter's Symposium (1984, Greenbelt, Md.). Get Away Special Experimenter's Symposium: proceedings of a symposium held at NASA Goddard Space Flight Center, Greenbelt, Maryland, August 1-2, 1984. Clarke R. Prouty, editor. Washington, National Aeronautics and Space Administration, Scientific and Technical Information Branch; Springfield, Va., for sale by the National Technical Information Service, 1984. 156 p. (NASA CP-2324) Q182.3.G47 1984
Proceedings of two more recent symposia are available on microfiche in Sci RR: 1985, accession no. N86-27297; and 1986, accession no. N87-20302.

Glenn, William H. The modern astronomy of ancient observatories. Science teacher, v. 54, Apr. 1987: 20-28. Q181.S38

Graves, Ralph Henry. Use of algae in space biology: a guide for student research. Washington, Biological Sciences Communication Project, Medical Center, George Washington University, 1969. 157 p. Z5356.A6G7
Prepared by the Biosciences Programs Division, National Aeronautics and Space Administration.
"Selected bibliography": p. 53-157.

Hodges-Caballero, Jane. Aerospace projects for young children. Atlanta, Ga., Humanics, c1979. 109 p. TL793.H56 1979
Bibliography: p. 104-107.
Examines the sky, flight, exploration of space, and air and space travel. Includes quizzes, activities, and a teacher's guide.

Kastner, Bernice. Space mathematics: a resource for secondary school teachers. Washington, National Aeronautics and Space Administration, 1985. 192 p. TL845.K37 1985
"A curriculum project prepared by the National Council of Teachers of mathematics."

Mallon, Gerald L. Cosmic journeys. Science teacher, v. 54, Mar. 1987: 28. Q181.S38
"This daily program of hands-on activities is an astronomical tour de force."

NASA educational briefs. Washington, National Aeronautics and Space Administration, 1980?- Pamphlet box*
Partial contents: EB 81-1, Space shuttle statistics.--EB 81-2, Space shuttle suit.--EB 81-3, Images from space.--EB 82-9, Robotics in space.--EB 83-8, STS-9 and Spacelab 1.--EB 83-9, STS-9 and amateur radio.

National Science Teachers Association. A universe to explore; a space sciences source book for junior high school teachers. Washington, 1969. 139 p. QB500.N38
"Prepared from materials developed by a committee of junior high school science teachers working in a cooperative project sponsored by the National Science Teachers Association and the National Aeronautics and Space Administration."
Bibliography: p. 135-137.

Simon, Seymour. Projects with air. New York, F. Watts, 1975. 63 p. QC863.5.S54

Skylab, classroom in space. Edited by Lee B., i.e., R. Summerlin. Prepared by George C. Marshall Space Flight Center. Washington, Scientific & Technical Information Office, National Aeronautics and Space Administration; for sale by the Supt. of Docs., U.S. Govt. Print. Off., 1977. 182 p. (NASA SP-401) TL789.8.U6S5675

Skylab Program. Skylab experiments. Produced by the Skylab Program and NASA's Education Programs Division in cooperation with the University of Colorado. Washington, National Aeronautics and Space Administration, 1973- QB61.S52 1973

Space science; a guide outlining understandings, fundamental concepts, and activities. Developed at Columbia University under the auspices of the director of the Summer Session, in cooperation with the Goddard Institute for Space Studies. Washington, National Aeronautics and Space Administration, 1969. 144 p. QB45.S68

Vacca, John. Reach for the stars: a time to act. Space age times, v. 15, July/Aug. 1988: 4-8. Pamphlet box*
"The crisis in space education and one teacher's solution."

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Billings, Charlene W. Space station: bold new step beyond earth. New York, Dodd, Mead, c1986. 64 p. TL797.B55 1986
Describes the design, functions, and possible methods of construction of the permanently manned space station proposed by NASA and projects what it will be like to live and work there.

Branley, Franklyn Mansfield. Space colony: frontier of the 21st century. New York, Elsevier/Nelson Books, c1982. 103 p. TL795.7.B7 1982

Compton, W. David, and Charles D. Benson. Living and working in space: a history of Skylab. Washington, Scientific and Technical Information Branch, National Aeronautics and Space Administration; for sale by the Supt. of Docs., U.S. Govt. Print. Off., 1983. 449 p. (The NASA history series, NASA SP-4208) TL789.8.U6S5546 1983*

Cowley, Stewart. Space flight. U.S. ed. Chicago, Rand McNally, 1982. 91 p. TL793.C687 1982b
Traces the history of space flight from the first steps into space achieved in 1957 by Russian Sputnik I to ramjets and solar sail flights of the future.

Fichter, George S. The space shuttle. New York, F. Watts, 1981. 64 p. TL795.5.F52 1981
Describes the conception of the space shuttle, its construction, its functions, and its potential for future space travel.

Friedlander, Michael W. Astronomy, from Stonehenge to quasars. Englewood Cliffs, N.J., Prentice-Hall, c1985. 589 p. QB45.F84 1985

Hendrickson, Walter B. Manned spacecraft to Mars and Venus, how they work. New York, Putnam, 1975. 128 p. TL373.H46 1975

Gallant, Roy A. Once around the galaxy. New York, F. Watts, 1983. 87 p. QB46.G327 1983

Life in space. Alexandria, Va., Time-Life Books, 1983. 304 p. TL793.5.L53 1983 (Folio)

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Newell, Homer Edward. Beyond the atmosphere: early years of space science. Washington, Scientific and Technical Information Branch, National Aeronautics and Space Administration, 1980. 497 p. (NASA history series, NASA SP-4211) QB500.N48

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Discusses the developing events taking rockets, satellites, and man into space.

Stine, G. Harry. Handbook for space colonists. New York, Holt, Rinehart, and Winston, c1985. 273 p. TL793.S758 1985

Weiss, Malcolm E. Far out factories: manufacturing in space. New York, Dutton, c1984. 84 p. TL797.W43 1984

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Naumann, Robert J., and Harvey W. Herring. Materials processing in space: early experiments. Washington, Scientific and Technical Information Branch, National Aeronautics and Space Administration, 1980. 114 p. (NASA SP-443) TA410.N28

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Social sciences and space exploration: new directions for university instruction. Edited by T. Stephen Cheston, Charles M. Chafer, Sallie Birket Chafer. Washington, National Aeronautics and Space Administration; for sale by the Supt. of Docs., U.S. Govt. Print. Off., 1984. 128 p. TL790.S63 1984
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Space Station Program: description, applications, and opportunities. Space Station Task Force, National Aeronautics and Space Administration. Park Ridge, N.J., Noyes Publications, c1985. 754 p. TL797.S6454 1985*

Van Huss, Wayne D., and William W. Heusner. Space flight research relevant to health, physical education, and recreation, with particular reference to Skylab's life science experiments. Washington, National Aeronautics and Space Administration, 1979. 52 p. RC1150.V36

HANDBOOKS AND ENCYCLOPEDIAS

The All color book of space. New York, Arco, c1985. 112 p.
QB602.A43 1985

Baker, David. The history of manned space flight. New York, Crown Publishers, 1982. 544 p. TL873.B33 1982*

Gutnik, Martin J. How to do a science project and report. New York, F. Watts, 1980. 63 p. Q164.G96

Lewis, Richard S. The illustrated encyclopedia of the universe: exploring and understanding the cosmos. New York, Harmony Books, c1983. 320 p.
QB501.2.L48 1983*

Mitchell, Mark L., and Janina M. Jolley. Research design explained. New York, Holt, Rinehart and Winston, c1988. 428 p. Q180.55.M4M57 1988
Bibliography: p. 411-415.

Pentz, Mike, and Milo Shott. Handling experimental data. Edited by Francis Aprahamian. Milton Keynes, Eng., Philadelphia, Open University Press, c1988. 95 p. Q182.3.P46 1988

Rand McNally astronomy encyclopedia. Chicago, Rand McNally, 1984. 141 p.
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Ridpath, Ian. The young astronomer's handbook. New York, Arco, 1984, c1981. 224 p. QB46.R545 1984

Saul, Wendy, and Alan R. Newman. Science fare: an illustrated guide and catalog of toys, books, and activities for kids. Introduction by Isaac Asimov. New York, Harper & Row, c1986. 295 p. LB1585.S28 1986*
See particularly "Astronomy: the sky's the limit": p. 222-239.

Stine, G. Harry. The handbook of model rocketry. Rev. 5th ed., 1st Arco ed. New York, Arco, c1983. 367 p. TL844.S77 1983
Official handbook of the National Association of Rocketry.

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Educators guide to free science materials. 1st ed.- 1960-
Compiled and edited by Mary H. Saterstrom. Randolph, Wis., Educators Progress Service. annual. Q181.A1E3*

Pilger, Mary Anne. Science experiments index for young people. Englewood, Colo., Libraries Unlimited, 1988. 239 p.
Available also in a software version. Q182.3.P735 1988b*
An index to science experiments and activities in almost 700 books, with descriptions, location codes, and cross-indexing.

Science experiments on file: experiments, demonstrations, and projects for school and home. New York, Facts on File, c1989. 300 p. (loose-leaf) Q182.3.S33 1989*

"The experiments, demonstrations and projects were developed by the winners and finalists in the Presidential Award for Excellence in Science and Mathematics administered by the National Science Foundation."

Intended as a resource for students, grades 6-12.

Science fair project index, 1960-1972. Compiled by the staff of the Science and Technology Division of the Akron Summit County Public Library. Edited by Janet Y. Stoffer. Metuchen, N.J., Scarecrow Press, 1975. 728 p. Q182.3.S34 1975*

Bibliography: p. 713-728.

Science fair project index, 1973-1980. Edited by Science and Technology Division, Akron-Summit County Public Library. Metuchen, N.J., Scarecrow Press, 1983. 723 p. Q182.3.S34 1975 Suppl.*

Bibliography: p. 709-723.

Science fair project index, 1981-1984. Edited by Cynthia Bishop, Deborah Crowe, Science and Technology Division, Akron-Summit County Public Library. Metuchen, N.J., Scarecrow Press, 1986. 686 p.

Bibliography: p. 680-686. Q182.3.S34 1975 Suppl. 2*

Science for children: resources for teachers. National Science Resources Center, Smithsonian Institution--National Academy of Sciences. Washington, National Academy Press, 1988. 176 p.

Z5818.S3S38 1988* and Pamphlet box*

Science project information index, 1973-1983. Edited by Alex Spence. Toronto, Infolib Resources, c1984. 282 p.

Bibliography: p. 279-282. Q182.3.364 1984 and Pamphlet box*

The Second science project information index. Edited by Alex Spence. Toronto, Infolib Resources, c1986. 144 p. Pamphlet box*

Bibliography: p. 141-144.

BOOK/FILM REVIEWS AND "BEST BOOK" SOURCES

Appraisal: science books for young people. v. 1- winter 1968- Boston, Children's Science Book Review Committee. Z7401.A63

Morrison, Philip, and Phylis Morrison. Books: again the Christmas pinata is filled with science books for young readers. Scientific American, v. 259, Dec. 1988: 120-127. T1.S5

An annual feature of the December issue; title varies from year to year.

Mount, Ellis, and Barbara A. List. Best sci-tech books of 1988: one hundred recommended books for sci-tech collections. Library journal, v. 114, Mar. 1, 1989: 39-46. Z671.L7

An annual feature of the March 1 issue.

The Museum of Science and Industry basic list of children's science books. 1973/1984- Compiled by Bernice Richter and Duane Wenzel. Chicago, American Library Association, 1985- Z7401.M87

Kept up to date with annual supplements.

New York Public Library. New technical books. v. 1- June/Aug. 1915- New York. Z5854.N542*

O'Connell, Susan M., Valerie J. Montenegro, and Kathryn Wolff. The best science books and A-V materials for children. Washington, American Association for the Advancement of Science, 1988. 335 p. (AAAS publication, 87-11) Z7401.027 1988*

Outstanding science trade books for children in 1987. New York, Children's Book Council, 1988. 6 p. Best Books vertical file*

Reprinted from Science and Children, v. 25, Mar. 1988.

"The 79 books were chosen for their accuracy, readability, and pleasing format, and are aimed primarily at children in grades K-8. Each entry is annotated."

Powell, Russell H., and James R. Powell. Core list of books and journals in science and technology. Phoenix, Oryx Press, 1987. 134 p. Z7401.P778 1987*

Science & technology: a purchase guide for branch and public libraries. Pittsburgh, Carnegie Library of Pittsburgh, 1987. 103 p. Best Books vertical file*

Published yearly, this is an annotated bibliography of new books. The titles are intended primarily for the general adult reader, but a number of books of interest to young persons are also represented. A special feature is the selection of books for libraries which buy only 50-100 titles each year.

Science books & films. v. 1- Apr. 1965- Washington, American Association for the Advancement of Science. Z7403.S33*

Science books for children: selections from Booklist, 1976-1983. Selected by Denise Murcko Wilms. Chicago, American Library Association, 1985. 183 p. Z7401.S363 1985*

Specialist books. New scientist, v. 118, June 30, 1988: 72-73, 75, 77-81, 83, 85-86. Q1.N52

This review feature appears annually, e.g., June 25, 1987, Apr. 10, 1986, Apr. 18, 1985, Apr. 12, 1984.

Student books. New scientist, v. 118, Apr. 28, 1988: 64-71, 74-75, 77-82. Q1.N52

A selection by university teachers of texts for undergraduates in computer science, physics, astronomy, mathematics, chemistry, earth sciences, biochemistry, biology and psychology.

This feature appears annually, e.g., Apr. 30, 1987, Sept. 18, 1986, Sept. 26, 1985, Sept. 27, 1984.

Technical book review index. v. 1- Sept. 1935- Pittsburgh, JAAD Pub. Co. Z7913.T36*
Issued 1935-76 by the Special Libraries Association.

Wilms, Denise Murcko. Outstanding science books for the classroom. Learning, v. 12, Feb. 1984: 50-52. LB5.L43

Wolff, Kathryn, Susan M. O'Connell, and Valerie J. Montenegro. AAAS science book list, 1978-1986. Washington, American Association for the Advancement of Science, 1986. 568 p. (AAAS publication, 85-24) Q181.A1A68 no. 85-24*

ABSTRACTING AND INDEXING SERVICES that index relevant journal articles on science projects in general are listed below. Some suggested terms are given as aids in searching. Space sciences material will be indexed under terms beginning ASTRONOMY, ASTRONAUTICS, SPACE, etc. The following indexes are available in most public and college libraries.

Applied Science & Technology Index (1913-) Z7913.I7*
See: Science--Exhibits
Science--Experiments

Current Index to Journals in Education (1969-) Z5813.C8
See: Science Activities
Science Experiment
Science Fairs
Science Projects
Science Talent Search

Education Index (1929-) Z5813.E23
See: Science--Activities
Science--Exhibits
Science--Experiments
Science--Projects

General Science Index (1978-, Z7401.G46*
See: Science Fairs, School
Science--Exhibitions

Magazine Index (May 1985-) Available on film/COM reader SSRR
See: Science--Exhibitions
Science--Experiments

Readers' Guide to Periodical Literature (1900-) AI3.R45
See: Science Fairs
Science Fairs, School
Science--Experiments
Science Talent Search

Note: Consult reference librarian for location of abstracting and indexing services in the Science Reading Room

Resources in Education (1966-) Z5813.R4
See: Science Activities
Science Experiments
Science Fairs
Science Projects

Vertical File Index (1932-1934-) Z1231.P2V48
See: Science--Study and Teaching
Subject of interest, e.g., Astronomy, Chemistry, etc.

Students may also need to use space-oriented and more technical abstracting and indexing services for further information. Sample titles are listed below. These titles may be available only in large or specialized libraries.

Aerospace Medicine and Biology (1952-)
Air University Library Index to Military Periodicals (1949-)
Astronomy and Astrophysics Abstracts (1969-)
Engineering Index (1884-)
Government Reports Announcements & Index (1946-)
International Aerospace Abstracts (1961-)
Mathematical Reviews (1940-)
Metals Abstracts (1968-)
Meteorological & Geoastrophysical Abstracts (1950-)
Scientific and Technical Aerospace Reports (1963-)
Science Citation Index (1955-)

JOURNALS that often contain articles relevant to space science projects are

Aerospace America TL501.A688A25
Aviation Week & Space Technology TL501.A8
Physics Teacher QC30.P48
Popular Mechanics Magazine T1.P77
Science Activities Q181.A1S29
Science and Children LB1585.S34
Science News Q1.S76
Science Teacher Q181.S38
Scientific American T1.S5
see particularly "Amateur scientist" feature which appears each month.
Sky and Telescope QB1.S536
Spaceflight TL787.B725

REPRESENTATIVE JOURNAL ARTICLES

Bartlett, Albert A., and Charles W. Hord. The slingshot effect: explanation and analogies. Physics teacher, v. 23, Nov. 1985: 466-473. QC30.P48

Culbertson, Philip E. Using space. Chemtech, v. 15, Apr. 1985: 214-217. TP1.I612

Davies, John. Science from the Space Station. Space education, v. 1, autumn/winter 1986/1987: 560-563. Pamphlet box*

Edgar, Robert. Skylab experiment results. Spaceflight, v. 18, Feb. 1976: 59-67. TL787.B725

Frost, Kenneth J., and Frank B. McDonald. Space research in the era of the space station. Science, v. 226, Dec. 21, 1984: 1381-1385. Q1.S35

Hillman, Alan L. After the Challenger: biomedical opportunities in space. New England journal of medicine, v. 315, Nov. 6, 1986: 1196-1200. R11.B7

Lamb, William G. A projectile motion bullseye. Science teacher, v. 52, Feb. 1985: 30-33. Q181.S38

Linde, Karen Vander. Seeds in space. Science and children. v. 22, Sept. 1984: 26. LB1585.S34

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Martin, Helen E. Could you build a satellite tracking station? Don't say 'no' until you try. Science teacher, v. 54, Jan. 1987: 15-17. Q181.S38

Meyers, Marilyn. Space Camp diary. Space world, v. Y-4-292, Apr. 1988: 14-15. TL787.S72

Seibert, G. ESA material science experiments and experimental facilities for the first spacelab payload. JBIS: Journal of the British Interplanetary Society, v. 31, July 1978: 243-250. TL790.A1B7

Should we make products on the moon? Astronautics & aeronautics, v. 21, June 1983: 80-85. TL501.A688A25

Space station 1995. Aerospace America, v. 23, Sept. 1985: 56-62, 66-67, 70-74, 76. TL501.A688A25

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Provides information on the Shuttle Student Involvement Program (SSIP) sponsored by the National Science Teachers Association.

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The Young astronaut program; a four-year-old organization offers space education to more than 500,000 elementary and high school students. Space times, v. 27, Sept./Oct. 1988: 8-9.

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ADDITIONAL SOURCES OF INFORMATION

Challenger Center for Space Science Education
1550 West Bay Area Boulevard, Suite 105
Houston, Texas 77058
Telephone: (713) 488-6481

Department of Science, Space and Technology
National Science Teachers Association
5112 Berwyn Road
3rd Floor
College Park, Maryland 20740
Telephone: (301) 474-0487

Sponsors, with NASA, the NEWMAST (NASA Educational orkshops for Math and Science Teachers) Workshops held during the summer at NASA Teacher Resource Centers throughout the country, the NEWEST (NASA Educational Workshops for Elementary School Teachers) Workshops, and the Space Science Student Involvement Program.

Kansas Cosmosphere and Space Center
1100 North Plum Street
Hutchinson, Kansas 67501
Telephone: (316) 662-2305

Offers Discovery workshops for school children and a Future Astronaut Training Program in summer camp sessions for students entering 7th, 8th or 9th grades. Students from across the country and abroad are welcome to apply. All classes are filled on a first come, first serve basis.

NASA

Educational Affairs Division
Elementary and Secondary Programs Branch
NASA Headquarters
Code: XEE
Washington, D.C. 20546
Telephone: (202) 453-8396

Provides specialists for school visits and educational material for teachers through its network of Teacher Resource Centers and CORE.

Educational Publications and Special Services Branch
NASA Headquarters
Code: XEP
Washington, D.C. 20546
Telephone: (202) 453-8327

Will distribute free copies of its publications as long as they are in stock.

Central Operation of Resources for Educators (CORE)
NASA
Loraine County Joint Vocational School
15181 Route 58 South
Oberlin, Ohio 44074
Telephone: (216) 774-1051, ext. 293 or ext. 294

Provides NASA educational audiovisual materials by mail to teachers who are not near a Teacher Resource Center. Educators can request a catalog of available materials by writing NASA CORE on school letterhead.

Science Service
1719 N Street, N.W.
Washington, D.C. 20036
Telephone: (202) 785-2255

Administers the International Science and Engineering Fair and the Westinghouse Science Talent Search.

U.S. Space Camp
The Space & Rocket Center
Tranquility Base
Huntsville, Alabama 35807
Telephone: (205) 837-3400

Camp term is one week for 4th-9th graders; 10 days for 10th-12th graders.

United States Space Education Association
746 Turnpike Road
Elizabethtown, Pennsylvania 17022
Telephone: (717) 367-3265

Young Astronaut Program
Suite 800
1211 Connecticut Avenue, N.W.
Washington, D.C. 20036
Telephone: (202) 682-1984