LC Science Tracer Bullet

Science Reference Section, Science, Technology and Business Division
Library of Congress, 101 Independence Avenue, S.E., Washington, D.C. 20540-4750

ISSN 0090-5232

SPACE SCIENCE PROJECTS

Compiled by Loretta Shaw

TB 06-3 **May 2006**

SCOPE: Space science, or the space sciences, are fields of science that are concerned with the study or utilizton of outer space. There are several major fields of space science including astronomy, exobiology, space transport, and space exploration and colonization. In addition, space sciences impact or are related to many other fields, from the biology of organisms in space environments to the geology of other bodies and planets (astrogeology), as well as nuclear physics in interstellar space and inside stars. This bibliography provides information sources which provide guidance to students, parents and teachers throughout the process of planning, developing, implementing and competing in science fair activities related to space science. Sources range in suitability from elementary to secondary school levels.

This guide updates *LC Science Tracer Bullet* 92-7, *Space Science Projects*. Sources in other areas of science and on science fairs themselves are listed in *Science Fair Projects* (TB 01-4), *Environmental Science Projects* (TB 97-6), and *Science Projects in Biology* (TB 93-7). Not intended to be a comprehensive bibliography, this guide is designed--as the name tracer bullet implies--to put the reader "on target."

INTRODUCTION

Space sciences. Pat Dasch, editor in chief. New York, Macmillan Reference USA, c2002. 4 v.
Includes bibliographical references. QB500.S63 2002 <SciRR>
Contents: v. 1. Space business. -- v. 2. Planetary science and astronomy. -- v. 3. Humans in space. -- v. 4. Our future in space.

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

ASTRONAUTICS (Highly relevant)
ASTRONAUTICS--EXPERIMENTS (Highly relevant)
See also subdivision "Experiments" under subject headings of particular interest, such as "Air--Experiments"; "Flight--Experiments"; "Physics--Experiments"
ASTRONOMY (Highly Relevant)
ASTRONOMY--EXPERIMENTS (Highly relevant)
SPACE SCIENCES (Highly Relevant)
SPACE SCIENCES--EXPERIMENTS (Highly relevant)
SPACE STATIONS (Highly Relevant)
ASTEROIDS (Relevant)

ASTRONOMY--OBSERVERS' MANUALS (Relevant)
ASTRONOMY--STUDY AND TEACHING (Relevant)
ASTRONOMY PROJECTS (Relevant)
CONSTELLATIONS (Relevant)
COSMOLOGY (Relevant)
EXOBIOLOGY (Relevant)
LIFE--ORIGIN (Relevant)
MANNED SPACE FLIGHT (Relevant)
MARS (PLANET) (Relevant)
MARS (PLANET)--EXPLORATION (Relevant)
OUTER SPACE (Relevant)
OUTER SPACE--EXPLORATION (Relevant)
OUTER SPACE--STUDY AND TEACHING (Relevant)
PLANETS (Relevant)
ROCKETRY (Relevant)
ROCKETS (AERONAUTICS) (Relevant)
SCIENCE--EXPERIMENTS (Relevant)
SCIENCE PROJECTS (Relevant)
SPACE ASTRONOMY (Relevant)
SPACE BIOLOGY (Relevant)
SPACE FLIGHT (Relevant)
SPACE FLIGHT--EXPERIMENTS (Relevant)
SPACE FLIGHT TO MARS (Relevant)
SPACE FLIGHT TO THE MOON (Relevant)
SPACE MEDICINE (Relevant)
SPACE SHUTTLES (Relevant)
SPACE VEHICLES (Relevant)
TELESCOPES (Relevant)
WEIGHTLESSNESS (Relevant)

BASIC TEXTS

Angelo, Joseph A. *Space technology*. Westport, CT, Greenwood Press, 2003. 394 p.
Bibliography: p. 370-371. TL790.A54 2003

Damon, Thomas. *Introduction to space: the science of spaceflight*. 3rd ed. Malabar, FL, Krieger, 2001. 276 p. TL791.D36 2001
Includes bibliographical references.

Exploring the universe. Anthea Maton and others. Annotated teacher's ed. Englewood Cliffs, NJ, Prentice Hall, c1994. 167 p. QB500.262.E96 1994

Graham, Ian. *Space science*. Austin, TX, Raintree Steck-Vaughn Publishers, c1993. 45 p. QB500.22 G73 1993
Describes the various ways in which we have examined and explored outer space and possible future ways of using this knowledge.

Graham, Ian. *Space travel*. New York, DK Pub., c2004. 96 p. TL793.G689 2004

Hibbs, Albert R., and Albert Frank Eiss. *The earth-space sciences; investigating man's environment*. River Forest, IL, Laidlaw Bros., c1971. 576 p. QE26.2.H5
Includes bibliographical references.

Lee, Wayne. *To rise from earth: an easy-to-understand guide to spaceflight*. 2nd ed. New York, Facts on File, 2000. 317 p. TL793.L3137 1999 <SciRR>

A Look into space. Chicago, World Book, c1994. 224 p. QB500.22.L66 1994
Bibliography: p. 216-217.
A supplement to *Childcraft–the how and why library*.

McKay, David W., and Bruce G. Smith. *Space science*. New York, F. Watts, 1986. 127 p.
Bibliography: p. 122-123. 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.

Morrison, David, Sidney C. Wolff, and Andrew Fraknoi. *Abell's exploration of the universe*. 7th ed. Philadelphia, Saunders College Pub., c1995. 682 p. QB45.A14 1995
Bibliography: p. 627-630.
Rev. ed. of *Exploration of the universe*. 6th ed. 1991.

Redfern, Martin. *The Kingfisher young people's book of space*. New York, Kingfisher, 1998. 95 p. QB500.22.R4 1998
Examines exploration of outer space and discusses the solar system, stars, galaxies, and the universe in general.

Space science. Danbury, CT, Grolier, c2004. 8 v. QB500.22.S65 2004
Contents: v. 1. How the universe works. -- v. 2. Sun and the solar system. -- v. 3. Earth and Moon. -- v. 4. Rocky planets. -- v. 5. Gas giants. -- v. 6. Journey into space. -- v. 7. Shuttle to space station. -- v. 8. What satellites see.

ADDITIONAL TITLES

Astrobiology: the quest for the conditions of life. Gerda Horneck, Christa Baumstark-Khan, eds. Berlin, New York, Springer, c2002. 411 p. QH325.A78 2002
Includes bibliographical references.

Boyce, Joseph. *The Smithsonian book of Mars*. Washington, Smithsonian Institution Press, c2002. 321 p. QB641.B68 2002 <SciRR>

Covington, Michael A. *Astrophotography for the amateur*. 2nd ed. Cambridge, New York, Cambridge University Press, 1999. 331 p. QB121.C68 1999
Bibliography: p. 318-324.

Docekal, Eileen M. *Sky detective: investigating the mysteries of space*. New York, Sterling Pub. Co., 1992. 128 p. QB63.D55 1992
Text and suggested activities help the reader explore the many aspects of the night sky, including the stars, constellations, and planets.

DeVorkin, David H., and Robert W. Smith. *The Hubble space telescope: imaging the universe*. Washington, National Geographic, c2004. 192 p. QB500.268.D48 2004 <SciRR>
Bibliography: p. 186-188.

Erickson, Jon. *Asteroids, comets, and meteorites: cosmic invaders of the earth*. New York, Facts On File, c2003. 256 p. QB651.E75 2003
Bibliography: p. 239-245.

Ford, Harry. *The young astronomer*. New York, DK Pub., c1998. 37 p. QB46.F755 1998
Introduces the basics of astronomy through a variety of projects, including a model of a lunar eclipse and a chart of a comet's path.

Furniss, Tim. *The history of space vehicles*. San Diego, CA, Thunder Bay Press, c2001. 256 p. TL795.F8697 2001

Jenkins, Dennis R. *Space shuttle: the history of the National Space Transportation System: the first 100 missions*. 3rd ed. Cape Canaveral, FL, D. R. Jenkins, c2001. 513 p.
Bibliography: p. 481-502. TL795.5.J6424 2001 <SciRR>

Kerrod, Robin. *Hubble: the mirror on the universe*. Buffalo, NY, Firefly Books, 2003. 192 p. QB500.268.K47 2003 <SciRR>

Life into space: space life sciences experiments, Ames Research Center, Kennedy Space Center, 1991-1998. Edited by Kenneth Souza, Guy Etheridge, Paul X. Callahan. Moffett Field, CA, National Aeronautics and Space Administration, Ames Research Center, 2000. 555 p. (NASA SP, 534)
QH327.L5347 2000 <SciRR>
Includes bibliographical references.

Life sciences research in space. Editors, H. Oser, B. Battrick. Paris, European Space Agency, c1989. 135 p. (ESA SP, 1105) QH327.L548 1989
Includes bibliographical references.

Planel, Hubert. *Space and life: an introduction to space biology and medicine*. Boca Raton, CRC Press, c2004. 178 p. QH327.P5213 2004
Bibliography: p. 165-166.

Taylor, Robert. *The space shuttle*. San Diego, CA, Lucent Books, 2002. 112 p.
Includes bibliographical references. TL795.515.T39 2002
Discusses the history and development, technological and political challenges, and future of the world's first reusable space vehicle, including the shuttle program's effects on NASA.

Watters, Thomas R. *Planets: a Smithsonian guide.* New York, Macmillan USA, c1995. 256 p. QB602.W38 1995 <SciRR>

SPECIALIZED TITLES

EXPERIMENTS--ELEMENTARY

Asimov, Isaac, and Greg Walz-Chojnacki. *Astronomy projects*. Milwaukee, Gareth Stevens Pub., c1996. 32 p. QB64.A75 1996
Bibliography: p. 30.
Rev. and updated ed. of *Projects in astronomy*. 1990.
Presents a variety of astronomy projects, including creative writing and drawing assignments, modelmaking, sky observation, and experiments.

Gardner, Robert. *Science project ideas about the moon*. Springfield, NJ, Enslow Publishers, c1997. 96 p. QB582.G37 1997
Bibliography: p. 92-93.
Introduces the phases and other characteristics of the moon through a series of experiments, most of which can be used to start a science fair project.

Gardner, Robert. *Science project ideas about space science*. Rev. ed. Berkeley Heights, NJ, Enslow Publishers, c2002. 128 p. QB500.264.G375 2002
Bibliography: p. 125.
Originally published as *Projects in space science*, c1988.

Maynard, Christopher. *Space*. New York, Kingfisher Books, 1993. 30 p. QB500.22.M39 1993
Presents information about a variety of topics connected with outer space including the moon, planets, space stations, rockets, gravity, and space travel. Includes instructions on how to build or experiment with the subjects it covers.

Simon, Seymour. *How to be a space scientist in your own home.* New York, Lippincott, c1982. 83 p. QB500.S545 1982
A collection of experiments using easily available, inexpensive materials, which duplicate some principles and problems encountered in space flight.

Tocci, Salvatore. *Experiments with the sun and the moon*. New York, Children's Press, c2003. 47 p. QB46.T63 2003
Includes bibliographical references.
Projects and experiments explore scientific principles related to the sun and moon, particularly those which explain eclipses.

Tocci, Salvatore. *Space experiments*. New York, Children's Press, c2002. 47 p.
Bibliography: p. 44. TL794.3.T63 2002

VanCleave, Janice Pratt. *Janice VanCleave's A+ projects in astronomy: winning experiments for science fairs and extra credit*. New York, Wiley, c2002. 216 p. QB46.V34 2002

VanCleave, Janice Pratt. *Janice VanCleave's astronomy for every kid: 101 easy experiments that really work.* New York, Wiley, c1991. 229 p. QB46.V36 1991
Elementary science experiment book that provides young scientists with safe, workable astronomy projects.

VanCleave, Janice Pratt. *Janice VanCleave's solar system: mind-boggling experiments you can turn into science fair projects*. New York, Wiley, c2000. 90 p. QB501.3.V36 2000
Provides instructions for a variety of experiments and science fair projects exploring the solar system, including the sun, moon, planets, comets, and meteorites.

Wood, Robert W. *Science for kids: 39 easy astronomy experiments*. Blue Ridge Summit, PA, TAB Books, c1991. 139 p. QB46.W88 1991
Includes bibliographical references.
Experiments deal with such things as measuring celestial bodies, making a spectroscope and telescope, photographing star tracks, gravity, and growing plants in space.

EXPERIMENTS--SECONDARY

Apfel, Necia H. *Astronomy and planetology*. New York, F. Watts, 1983. 122 p.
Includes bibliographical references. QB46.A63 1983
Gives instructions for building or making theodolites, sundials, telescopes, spectroscopes, planetariums, and models of stars, and describes methods and times for observing the sun, moon, planets, stars, comets, and meteors.

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.

Bonnet, Robert L., and Dan Keen. *Science fair projects: flight, space & astronomy*. New York, Sterling Pub. Co., c1997. 95 p. QB500.22.B66 1997
Presents fifty-three simple experiments and projects revolving around space science, including topics such as seasons, the night sky, light, and flight.

Bonnet, Robert L., and Dan Keen. *Space and astronomy: 49 science fair projects*. Blue Ridge Summit, PA, TAB Books, c1992. 128 p. QB64.B64 1991
Suggests a variety of astronomy projects suitable for science fairs, involving the stars, moon, planets, and Milky Way.

Gardner, Robert. *Science project ideas about the sun*. Springfield, NJ, Enslow, c1997. 96 p.
Bibliography: p. 94. QB521.5.G37 1997
Uses experiments to illustrate the phases and patterns of the sun as well as the reasons for its importance as an energy source.

Goran, Morris Herbert. *Experimental astronautics*. Indianapolis, H. W. Sams, 1967. 168 p.
(A Howard W. Sams Photofact publication, EAG-1) TL794.3.G6

Greenleaf, Peter. *Experiments in space science*. New York, Arco Pub., c1981. 166 p. QB46.G83 1981
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.
Edition for 1969, by S. Engelbrektson and P. Greenleaf, published under title *Let's explore outer space*.

Harrington, Philip S., and Edward Pascuzzi. *Astronomy for all ages: discovering the universe through activities for children and adults*. 2nd ed. Guilford, CT, Globe Pequot Press, c2000. 214 p. QB63.H317 2000
Includes bibliographical references.

Lowry, Peter, and Field Griffith. *Model rocketry: hobby of tomorrow*. Garden City, NY, Doubleday, 1971. 152 p. TL844.L68
Bibliography: p. 123-126.
A guide to model rocketry including safety precautions, rocket construction, launching systems, recovery methods, and suggestions for organizing a rocket club.

Millspaugh, Ben P. *Aviation and space science projects*. Blue Ridge Summit, PA, TAB Books, c1992. 133 p. TL547.M63 1991
Includes projects dealing with air density, wind, balloons, gliders, spacecraft, and many more aviation and space-related categories.

Moeschl, Richard. *Exploring the sky: 100 projects for beginning astronomers*. Chicago, Chicago Review Press, c1989. 339 p. QB64.M6 1989
Includes bibliographical references.
Presentation of projects includes information on related mythology and pertinent history, cultures, and people.

Rabiza, F. *Space adventures in your home*. Translated from the Russian by Alexander Repyev. Moscow, Mir Publishers, 1983. 192 p. TL794.3.R33 1983
Gives instructions for experiments and projects involving various aspects of space exploration.

Rhatigan, Joe, and Rain Newcomb. *Out-of-this-world astronomy: 50 amazing activities & projects*. New York, Lark Books, c2003. 128 p. QB46.R527 2003
Introduces "the study of stuff in space," providing statistics, quizzes, activities, and experiments about the stars and planets.

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

Schaaf, Fred. *Seeing the sky: 100 projects, activities, and explorations in astronomy*. New York, Wiley, c1990. 212 p. QB64.S427 1990
Bibliography: p. 207-208.

Van Milligan, Timothy S. *Model rocket: design and construction: how to create and build unique and exciting model rockets that work*. Waukesha, WI, Kalmbach Books, c1995. 120 p. TL844.V26 1995

Vogt, Gregory. *Space exploration projects for young scientists*. New York, Franklin Watts, c1995. 144 p. QB500.22.V643 1995
Bibliography: p. 141.
Suggests projects demonstrating such outer space principles and phenomena as gravity wells, rocket propulsion, and planetary motion.

CLASSROOM EXPERIMENTS AND ACTIVITIES

Alex, Joanne DeFilipp, and Aline D. Wolf. *I wonder what's out there: a vision of the universe for primary classes*. Hollidaysburg, PA, Parent Child Press, c2003. 64 p.
Bibliography: p. 48-58. QB46.A58 2003 <ChLit>

Astronomy adventures. National Wildlife Federation. Philadelphia, Chelsea House Publishers, c1998. 101 p. QB46.A74 1997b
Bibliography: p. 101-102.
Explores astronomy through a variety of activities and projects. Includes reproducible "copycat pages" with games, puzzles, pictures, and more.

Dawson, Dennis W. *Out of the classroom: observations and investigations in astronomy*. Australia, Pacific Grove, CA, Brooks/Cole, c2002. 181 p. QB61.D49 2002
Bibliography: p. vi-vii.

Dyson, Marianne J. *Space station science: life in free fall*. New York, Scholastic, c1999. 128 p.
Bibliography: p. 128. TL797.D97 1999
Describes space stations, the International Space Station, the training and activities of its crew, and the conditions that will exist on it, including weightlessness and the dangers of radiation and meteors. Includes experiments and activities simulating conditions in space.

Ferguson, Dale C. *Introductory astronomy exercises*. 2nd ed. Pacific Grove, CA, Brooks/Cole, c2001. 326 p. QB62.7.F47 2001

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

Kerrod, Robin. *Astronomy*. Milwaukee, Gareth Stevens Pub., 1998. 68 p. QB46.A415 1998
Bibliography: p. 66.
Originally published New York, Lorenz Books, 1996.
Provides an introduction to astronomy, including information about the solar system, stars and constellations, and projects such as making a sundial.

Kowalski, Kathiann M. *The everything kids' space book: all about rockets, moon landings, Mars, and more plus space activities you can do at home!* Holbrook, MA, Adams Media Corp., c2000. 139 p. QB500.22.K578 2000
Bibliography: p. 132.

Petty, Kate, and Caroline Pitcher. *Build your own space station*. New York, F. Watts, 1985. 30 p. TL844.P48 1985
Step-by-step instructions for constructing a space station and space vehicles out of materials available at home or school.

Space exploration. Milwaukee, Gareth Stevens Pub., 2004. 32 p. QB500.22.Q47 2004
Originally published *Quest*. Bethesda, MD, Discovery Enterprises, 2000.

VanCleave, Janice Pratt. *Janice VanCleave's constellations for every kid: easy activities that make learning science fun*. New York, Wiley, c1997. 247 p. QB46.V363 1997
Describes twenty of the most prominent constellations, including the Big Dipper, Orion, and Cancer, explains how to locate them, and provides instructions for related activities.

West, Krista. *Hands-on projects about earth and space*. New York, PowerKids Press, 2002. 24 p. QB46.W435 2002

Wiese, Jim. *Cosmic science: over 40 gravity-defying, earth-orbiting, space-cruising activities for kids*. New York, J. Wiley, c1997. 120 p. QB500.22.W54 1997
Provides instructions for activities exploring gravity, moon craters, the planets of our solar system, and other aspects of outer space.

BACKGROUND READINGS

Asimov, Isaac, and Greg Walz-Chojnacki. *The 21st century in space*. Rev. and updated ed. Milwaukee, Gareth Stevens Pub., 1996. 32 p. QB500.22.A4513 1996
Bibliography: p. 30.
Rev. ed. of *The future in space*. 1993.

Barter, James. *Space stations*. San Diego, CA, Lucent Books, c2004. 112 p.
Includes bibliographical references. TL797.15.B37 2004

The Beginner's observing guide. Edited by Leo Enright. Toronto, Royal Astronomical Society of Canada, 1992- . QB63.B44
An introduction to the night sky for the novice stargazer.
Rev. 5th ed., 2003.

Bergin, Mark. *Exploration of Mars*. New York, Franklin Watts, 2001. 32 p.
Special split pages. TL799.M3B4697 2001

Hagerty, Jack, and Jon C. Rogers. *Spaceship handbook: rocket and spacecraft designs of the 20th century, fictional, factual, and fantasy*. Livermore, CA, ARA Press, c2001. 1 v. (various pagings)
Includes bibliographical references. TL795.H34 2001 <SciRR>

Kerrod, Robin. *Universe*. New York, DK Pub., 2003. 64 p. QB46.K43 2003

Lüsted, Marcia Amidon. *The International Space Station*. San Diego, CA, Lucent, c2005. 112 p.
Includes bibliographical references. TL797.15.L87 2005

Mitton, Simon, and Jacqueline Mitton. *The young Oxford book of astronomy*. New York, Oxford University Press, c1995. 160 p. QB46.M63 1995

Neal, Valerie, Cathleen S. Lewis, and Frank H. Winter. *Spaceflight: a Smithsonian guide*. New York, Macmillan USA, c1995. 256 p. TL795.N43 1995 <SciRR>
Bibliography: p. 256.

Out of this world: an illustrated guide to space technology and exploration. New York, Arco, c1985. 119 p. QB500.262.O95 1985

Parks, Peggy J. *Exploring Mars*. Detroit, Lucent Books, c2005. 112 p. QB641.P37 2005
Bibliography: p. 100-105.

RELATED TITLES

Berliner, Don. *Living in space*. Minneapolis, Lerner Publications Co., c1993. 64 p. TL797.B47 1993
Discusses such considerations for future manned spacecraft as design features, preparing and eating food, personal hygiene, interpersonal relationships, exercise, and safety.

Beyond the International Space Station: the future of human spaceflight; proceedings of an international symposium, 4-7 June 2002, Strasbourg, France. Edited by M. Rycroft. Dordrecht, Boston, Kluwer Academic Publishers, c2002. 322 p. (Space studies, v. 7)
TL873.B48 2002

Carlisle, Rodney P. *Exploring space*. New York, Facts On File, c2005. 152 p.
Bibliography: p. 139-142. TL793.C363 2005

Cole, Michael D. *Living on Mars: mission to the red planet*. Springfield, NJ, Enslow Publishers, c1999. 48 p. TL799.M3C63 1999
Bibliography: p. 46.
Describes the landing of Sojourner on Mars, summarizes the history of information gathering missions, and speculates about future plans for explorations of the Red Planet.

DeSomma, Vincent V. *The mission to Mars and beyond.* New York, Chelsea House, c1992. 111 p. TL799.M3D47 1992
Bibliography: p. 106-107.
Discusses the proposed manned space flight to Mars and what might be found there.

Hartman, H., J. G. Lawless, and Philip Morrison. *The essentials of biology of the universe and the search for extraterrestrial life*. Piscataway, NJ, Research & Education Association, c2000. 111 p. QH325.H38 2000
Bibliography: p. 102-103.

History of rocketry and astronautics: proceedings of the Thirtieth History Symposium of the International Academy of Astronautics: Beijing, China, 1996. San Diego, CA, published for the American Astronautical Society by Univelt, Incorporated, c2003. 358 p. (AAS history series, v. 25) (IAA history symposia, v. 16) TL781.H57 2003
Includes bibliographical references.

Scagell, Robin. *Night sky atlas*. New York, DK Pub., 2004. 96 p. QB63.S367 2004

Stott, Carole. *Moon landing: the race for the moon*. New York, DK Pub., 1999. 48 p.
TL799.M6S83 1999
An illustrated account of humanity's exploration of the moon, from our first observations and attempts to the first landing and later expeditions.

Stott, Carole. *Space exploration*. Rev. ed. New York, DK Pub., 2004. 72 p. TL793.S8 2004
Describes rockets, exploratory vehicles, and other technological aspects of space exploration, satellites, space stations, and the life and work of astronauts.

Taylor, Robert. *Life aboard the space shuttle*. San Diego, CA, Lucent Books, c2002. 112 p.
Bibliography: p. 103-105. TL795.515.T3897 2002
Discusses the early years of travel in space shuttles, including the construction of the first shuttles and the training of the crews.

USA in space. 2nd ed. Edited by Russell R. Tobias. Pasadena, CA, Salem Press, 2001. 3 v. (1593 p.)
Includes bibliographical references. TL789.8.U5U83 2001 <SciRR>
v. 1. Air traffic control satellites-jet propulsion laboratory, I-538. -- v. 2. Johnson Space Center-Space Shuttle flights, 1982, 539-1086. -- v. 3. Space Shuttle flights, 1983-Voyager 2: Neptune, appendices, indexes, 1087-1594.

HANDBOOKS, DICTIONARIES, AND ENCYCLOPEDIAS

Angelo, Joseph A. *Encyclopedia of space exploration*. New York, Facts On File, c2000. 305 p. QB500.262.A54 2000 <SciRR>

Angelo, Joseph A. *The Facts on File dictionary of space technology*. Rev. ed. New York, Checkmark Books, c2004. 474 p. TL788.A53 2004 <SciRR Dict>
Rev. ed. of *Dictionary of space technology*. 1982

Bakich, Michael E. *The Cambridge encyclopedia of amateur astronomy*. Cambridge, New York, Cambridge University Press, 2003. 342 p. QB64.B36 2003 <SciRR>

Bakich, Michael E. *The Cambridge guide to the constellations*. Cambridge, New York, Cambridge University Press, 1995. 320 p. QB802.B35 1995
Bibliography: p. 319-320.

Bakich, Michael E. *The Cambridge planetary handbook*. Cambridge, New York, Cambridge University Press, 2000. 336 p. QB601.B36 2000
Bibliography: p. 334.

Berry, Richard. *Build your own telescope*. 3rd ed. Richmond, VA, Willmann-Bell, c2000. 287 p.
Includes bibliographical references. QB88.B47 2000

Educators guide to free science materials. Randolph, WI, Educators Progress Service, 1960-.
Latest ed. in Science Reading Room. Q181.A1E3 <SciRR>

Encyclopedia of space science & technology. Hans Mark, editor. New York, Wiley, c2003. 2 v.
Includes bibliographical references. QB497.E53 2003 <SciRR>

Gibson, Bob. *The astronomer's sourcebook: the complete guide to astronomical equipment, publications, planetariums, organizations, events, and more*. Rockville, MD, Woodbine House, 1992. 302 p. QB64.G43 1992 <SciRR>
Includes bibliographical references.

Miller, Robert, and Kenneth Wilson. *Making & enjoying telescopes: 6 complete projects & a stargazer's guide*. New York, Sterling Pub. Co., 1995. 160 p. QB88.M55 1995
Bibliography: p. 158.
This guide for the backyard astronomer provides basic information, offers activity ideas, and gives construction details and assembly drawings for six telescopes.

National Geographic encyclopedia of space. Compiled by Linda K. Glover and others. Washington, National Geographic, c2005. 400 p. TL787.5.N38 2005 <SciRR>
Bibliography: p. 385.
Contents: Deep space, compiled by Andrea Gianopoulos. -- Our solar system, compiled by Patricia S. Daniels. -- Reaching & maneuvering in space, compiled by Patricia S. Daniels & Linda K. Glover. -- Human spaceflight, compiled by Andrew Chaikin. -- Earth science & commerce from space, compiled by Jonathan T. Malay. -- Military & intelligence uses of space, compiled by Linda K. Glover.

Outer space. Danbury, CT, Grolier Educational, 1998. 12 v. QB46.O826 1998
Contents: v. 1. The sun's family, Robert Hitt, Jr. -- v. 2. The moon, Robert Hitt, Jr. -- v. 3. The inner planets, Amie Gallagher. -- v. 4. The outer planets, Francine Jackson. -- v. 5. The night sky, Amie Gallagher. -- v. 6. Stars and galaxies, Clint Hatchett. -- v. 7. Astronomy, Francine Jackson. -- v. 8. Space travel, Clint Hatchett. -- v. 9. Space shuttle, Francine Jackson. -- v. 10. Astronauts and cosmonauts, Alyson Evans. -- v. 11. Space stations, Bruce Wetterau. -- v. 12. Satellites and probes, Bryan Bunch and Clint Hatchett.

Stine, G. Harry. *Handbook of model rocketry*. 6th ed. New York, J. Wiley, c1994. 349 p.
Bibliography: p. 312. TL844.S77 1994 <SciRR>

Todd, Deborah, and Joseph A. Angelo. *A to Z of scientists in space and astronomy*. New York, Facts on File, c2005. 322 p. QB35.T63 2005 <SciRR>
Bibliography: p. 299-304.

ADDITIONAL REFERENCE SOURCES

BIBLIOGRAPHIES AND PROJECT INDEXES

Aerospace medicine and biology. Washington, Scientific and Technical Information Branch, National Aeronautics and Space Administration; Springfield, VA, available from the National Technical Information Service (NTIS), 1964-2000. (NASA SP, 7011) Z6664.3.A36
A selection of annotated references to unclassified reports and journal articles that were introduced into the NASA scientific and technical information system and announced in Scientific and technical aerospace reports (STAR) and International aerospace abstracts (IAA).

Air and space history: an annotated bibliography. Edited by Dominick A. Pisano and Cathleen S. Lewis. New York, Garland Pub., 1988. 571 p. (Garland reference library of the humanities, vol. 834) Z5060.A44 1988 <MRR Alc>

Large space structures & systems in the space station era: a bibliography with indexes. Washington, National Aeronautics and Space Administration, Office of Management, Scientific and Technical Information Division, 1990-1993. 5 v. (NASA SP, 7085) Z5064.S8L37

Looney, John J. *Bibliography of space books and articles from non-aerospace journals, 1957-1977*. Washington, History Office, NASA Headquarters, 1979. 243 p.
Z5065.U5L66 <SciRR>

Mitchell, Frank G. *25 years of progress: a bibliography of research materials and references in the field of aviation/aerospace education, 1963-1988*. Wichita, KS, F.G. Mitchell,1989. 354 p.
Z5064.S89M57 1989

Rhatigan, Joe, and Rain Newcomb. *Prize-winning science fair projects for curious kids*. New York, Lark Books, 2004. 112 p. Q182.3.R49 2004

Rosner, Marc Alan. *Science fair success using the Internet, revised and updated*. Rev. and updated ed. Berkeley Heights, NJ, Enslow Publishers, c2006. 112 p. Q182.3.R68 2006
Includes bibliographical references.

Science fair project index, 1985-1989. Edited by Cynthia Bishop and others. Metuchen, NJ, Scarecrow Press, 1992. 555 p. Q182.3.S34 1975 Suppl. 3 <SciRR>
Bibliography: p. 548-555.
Indexes science fair projects and experiments in books published from 1985 to 1989.

Space exploration reference library. Cumulative index. Sarah Hermsen, index coordinator. Detroit, UXL, Thomson Gale, c2005. 42 p. Z5061.S63 2005
A cumulation of the indexes from *Space exploration. Almanac*; *Space exploration. Biographies*; and *Space exploration. Primary sources; grade level 5-12.*

Sykes, Margaret W. *A selected bibliography on manned orbital space stations.* King of Prussia, PA, Space Sciences Laboratory, Missile and Space Division, General Electric, 1963. 42 p. Z5064.S8S98

United States. National Aeronautics and Space Administration. Scientific and Technical Information Branch. *Technology for large space systems: a special bibliography with indexes*. Washington, Scientific and Technical Information Branch, National Aeronautics and Space Administration; Springfield, VA, available from National Technical Information Service, 1979. 76, [78] p. (NASA SP, 7046) Z5064.S8U54 1979

United States. National Aeronautics and Space Administration. Scientific and Technical Information Branch. *Technology for large space systems. Supplement.* Washington, Scientific and Technical Information Branch, National Aeronautics and Space Administration, 1979-1990. 22 v. (NASA SP, 7046) Z5064.S8U54 1979 Suppl

VIDEO MATERIAL (Note: These are not available in the Library of Congress collections.)
A number of organizations produce space related DVDs and video cassettes for students. The list below is not comprehensive, but represents the variety of material available. A listing of video-type material for Astronomy, Exploration and Science can be found at the Boston Museum of Science, Harrison Lyman Library website. URL: http://www.mos.org/doc/1068

All about stars. Space Science for Children Series. DVD or Video Cassette. Schlessinger Media, 2003.
Suitable for children in grades K-4. Teacher's guide with bibliographic sources is downloadable.
Other titles in series include *All about the earth; All about the sun; All about the moon;* and *All about the planets*.

Alone in space. Wonders of the Universe Series. Video Cassette. Ambrose Video Pub., 1996.
Grades 7 to adult.
Other titles in series include *To the edge of time;* and *Once in a lifetime*.

Astronomy. Space Science in Action Series. DVD or Video Cassette. Schlessinger Media, 2006.
Suitable for children in grades 5-8. Teacher's guide included.
Other titles in series include *Earth; Earth's atmosphere; Moon; Planets & the Solar system; Space exploration; Stars; Sun;* and *Universe.*

Astronomy 101. Video Cassette. Mazon Productions, Inc. 1983.
Suitable for grade 3.

Final frontier part 4: space age technology. ABC News Classroom Edition Series. Video Cassette. Disney Educational Productions, ABC News Productions, 2003.
Grade level 6 and up.
Other titles in series include *Final frontier part 1: the race to the moon; Final frontier part 2: the shuttle era;* and *Final frontier part 3: to Mars and beyond.*

Outer space. Bill Nye the Science Guy Complete Series. Video Cassette. Disney Educational Productions, 2003.
Suitable for Junior and Senior High.

Space exploration. Bill Nye the Science Guy Complete Series. Video Cassette. Disney Educational Productions, 1997.
Suitable for all grade levels.

Voyage to the Milky Way. Video Cassette. PBS Home Video, 1999.
Grades 7 to adult.

Voyage to the planets and beyond. DVD. Warner Home Video, 2004.
Grades 6 to adult.

Welcome to Mars. NOVA: Space DVD Series. DVD. WGBH Video, 2005.
Grades 7 to adult.
Other titles in series include *The Elegant universe; Mars: dead or alive; Dimming sun;* and *Voyage to the mystery moon.*

ABSTRACTING AND INDEXING SERVICES that index relevant journal articles and other literature on science projects in general are listed below. 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 <SciRR> <MRR Alc> and Electronic format

Current Index to Journals in Education (1969-)
Z5813.C8 <MRR Alc> <N&CPR> and Electronic format

Education Index (1929-) Z5813.E23 <MRR Alc> <N&CPR> and Electronic format

General Science Index (1978-) Z7401.G46 <SciRR> <N&CPR> and Electronic format

Readers' Guide to Periodical Literature (1900-)
AI3.R48 <BusRR> <N&CPR> and Electronic format

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 Abstracts (1961-) TL500.I57 <SciRR>
Air University Library Index to Military Periodicals (1949-) Z6723.U27 <SciRR>
URL: http://www.dtic.mil/dtic/aulimp/
Mathematical Reviews (1940-) QA1.M76 <SciRR>

Metals Abstracts (1968-) TN1.M5153 <SciRR>
Meteorological & Geoastrophysical Abstracts (1950-) QC851.A62 <SciRR>
Science Citation Index (1955-) Z7401.S365 <SciRR>
Scientific and Technical Aerospace Reports (1963-) TL500.S35 and Electronic format URL: http://purl.access.gpo.gov/GPO/LPS9248

JOURNALS that often contain articles relevant to space science projects include the following:

Ad Astra TL787.A277
Aerospace America TL501.A688A25
Air & Space Smithsonian TL501.A55257
Astronomy QB1.A7998
Aviation Week & Space Technology TL501.A8
Chemical & Engineering News TP1.C35
Odyssey QB46.03a
The Physics Teacher QC30.P48
Popular Mechanics Magazine T1.P77
Popular Science AP2.P8
The School Science Review Q1.S29
Science Activities Q181.A1S29
Science and Children LB1585.S34
Science News Q1.S76
Science Scope (Not in LC Collections)
The Science Teacher Q181.S38
Scientific American T1.S5
Sky & Telescope QB1.S536
Space News TL787.S6724
Spaceflight TL787.B725
The Times Educational Supplement L16.T6

REPRESENTATIVE JOURNAL ARTICLES

French, Francis. Space flight in education. *Spaceflight*, v. 38, Apr. 1996: 131-132. TL787.B725

Gianopoulos, Andrea. Blast off! *Astronomy*, v. 27, Jan. 1999: 84-88. QB1.A7998

Hazeltine, Katie. Blast off to Space Academy for educators. *Science scope*, v. 27, Feb. 2004: 40-41. Not in LC Collections

Johnson, Carla. NASA "rocks" problem-based learning. *Science scope,* v. 28, Sept. 2004: 48-49. Not in LC Collections

Leatherwood, G.B. Rockets for schools. *Ad astra*, v. 16, Apr./May/June 2004: 43. TL787.A277

MacDermott, Kevin. High flying chemistry. *Chemical & engineering news,* v. 79, Oct. 1, 2001: 104-109. TP1 .C35

Parker, Becky. Using the stars to inspire inner space. *The Times educational supplement*, no. 4552, Oct. 3, 2003: supp 7. L16.T6

Rapp, Steve. Deep space inquiry. *The Science teacher*, v. 70, Nov. 2003: 46-50. Q181.S38

Stern, David P. Using space to teach physics. *The Physics teacher*, v. 37, Feb. 1999: 102-103. QC30.P48

Tebbutt, M. Ideas for teaching earth and space in "school time." *The School science review,* v. 75, Mar. 1994: 51. Q1.S29

SELECTED MATERIALS available in the Science Reading Room pamphlet boxes include:

Bergman, Bob. Moon orbit oddities. *Astronomy,* v. 32, Dec. 2004: 16.

Cook, Bill. Killer Impact. *Astronomy,* v. 32, Dec. 2004: 38-43.

Desonie, Dana. The threat from space. *Earth*, v. 5, Aug. 1996: 24-31.

Ferguson, Henry. *Hubble 2004 science year in review.* Greenbelt, MD, National Aeronautics and Space Administration, 2004. 71 p. (NASA Publication NP-2004-8-665-GSFC.)

Fraknoi, Andrew. The moon: a resource guide. *Family ASTRO* ver. 3.0, July 2002, c2002. URL: http://www.astrosociety.org/education/family/resources/moonprint.html

Gugliotta, Guy. Slowly but cheaply, a new way to the moon: Spacecraft tests usefulness of non-chemical propulsion. *Washington post*, Nov. 15, 2004: A10.

Hendrickson, Nancy. It's a bird...it's a plane...it's a satellite. *Astronomy*, v. 26, July 1998: 90-93. See especially table "Tracking sats on the web," p. 93.

Kerr, Richard A. A source found for Earth's commonest meteorites. *Planetary science*, v. 261, July 1993: 427.

Noland, David. Zero-G blues. *Discover,* v. 11, May 1990: 74-80.

Peterson, Joyce. SI, NASA and NSF team up to collect and study meteorites. *Smithsonian Institution. Research reports*, no. 87, winter 1997: 1-6.

Schilling, Govert. Planets discovered around other sunlike stars. *Science,* v. 273, July 26, 1996: 429.

United States. National Aeronautics and Space Administration. *Near-earth objects: resources at the NASA HQ library*. Revised May 2006.
URL: http://www.hq.nasa.gov/office/hqlibrary/pathfinders/aster.htm

United States. National Aeronautics and Space Administration. *Space colonization: resources at the NASA HQ Library*. Revised June 2005.
URL http://www.hq.nasa.gov/office/hqlibrary/pathfinders/colony.htm

United States. Naval Research Laboratory. *A Clementine collection: Moonglow.* Washington, Naval Research Laboratory, 1994. 92 p. (ADA2863603)

Ziegler, Jan. Life beyond gravity. *Air & space Smithsonian,* v. 4, Dec. 1989/Jan. 1990: 80-87.

ADDITIONAL SOURCES OF INFORMATION

Astronomical Society of the Pacific
390 Ashton Avenue
San Francisco, California 94112
Telephone: (415) 337-1100
URL: http://www.astrosociety.org/index.html
An international non-profit scientific and educational organization dedicated to supporting astronomical research and to increasing public understanding and appreciation of astronomy. Its services include providing resources and tools to assist educators and disseminating the results of astronomical research to the astronomical community. *Universe in the Classroom* is an online journal for teachers.

Challenger Center for Space Science Education
1250 North Pitt Street
Alexandria, Virginia 22314
Telephone: (888) 683-9740
URL: http://www.challenger.org/
A not-for-profit educational institution that works with educators, scientists, business leaders, and others to create hands-on learning experiences for students and teachers. Created in 1998, the Challenger Center's Space Science Research department is home for practicing scientists and researchers engaged in active scholarly research.

Kansas Cosmosphere and Space Center
1100 North Plum Street
Hutchinson, Kansas 67501
Telephone: (800) 397-0330
URL: http://www.cosmo.org/
Offers Discovery workshops for school children and a Future Astronaut Training Program in summer camp session 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-served basis. Houses a NASA Educators Resource Center.

National Aeronautics and Space Administration
The education offices of the NASA Centers participate in the planning and implementation of Agency-level education programs and lead the development of education programs that are unique to their Centers. NASA Field Centers are assigned as Educator Resource Centers for specific states. NASA Centers sponsor summer programs aimed at teachers and students. Only programs specific to space science are noted.

NASA Ames Research Center
Moffett Field, California 94035
Telephone: (650) 604-6274
URL: http://education.arc.nasa.gov
The Jason Project teams scientists with middle-grade students for hands-on learning experiences about Earth and Mars. Students from 6th-12th grades develop space settlement designs and related materials in an annual NASA Space Settlement Design Contest.

NASA Dryden Flight Research Center
P.O. Box 273
Edwards, California 93523-0273
Telephone: (661) 276-3311
URL: http://www.dfrc.nasa.gov/Education/index.html
Provides support for students in annual robotics competitions.

NASA Glenn Research Center
21000 Brookpark Road
Cleveland, Ohio 44126
Telephone: (216) 433-2957
URL: http://www.nasa.gov/centers/glenn/education/index.html
Provides support for students in annual robotics competitions.

NASA Goddard Space Flight Center
Mail Code 130
Greenbelt, Maryland 20771
Telephone: (301) 286-2000
URL: http://www.nasa.gov/centers/goddard/home/index.html

The Laboratory for Extraterrestrial Physics – Education and Outreach website
URL: http://lep694.gsfc.nasa.gov/lepedu/site_map.html
Provides science fair project ideas and resources for educators.

The Laboratory for Terrestrial Physics website
URL: http://ltp-education.gsfc.nasa.gov/
Provides resources for educators.

NASA Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, California 91109
Telephone: (818) 354-4321
URL: http://www.nasa.gov/centers/jpl/education/index.html
Sponsors the Dime-Dropping in a Micrgravity Environment competition (URL: http://microgravity.grc.nasa.gov/DIME.html) which allows teams of students to design and build a science experiment which will then be operated in a NASA microgravity drop tower facility. Provides support for students in annual robotics competitions.

NASA Johnson Space Flight Center
2101 NASA Parkway
Houston, Texas 77058
Telephone: (281) 244-2100
URL: http://www.nasa.gov/centers/johnson/education/index.html
Sponsors annual underwater robotics competition.

NASA Langley Research Center
100 NASA Road
Hampton, Virginia 23681-2199
Telephone: (757) 864-5800
URL: http://www.nasa.gov/centers/langley/education/index.html

NASA Marshall Space Flight Center
Huntsville, Alabama 35812
Telephone: (256) 837-3400
URL: http://www.nasa.gov/centers/marshall/education/index.html
Sponsors robotic competitions and the Great Moonbuggy Race.

NASA Central Operation of Resources for Educators (CORE)
Lorain County Joint Vocational School
15181 Route 58 South
Oberlin, Ohio 44074
Toll Free Ordering Line: (866) 776-CORE
URL: http://education.nasa.gov/edprograms/core/home/index.html
Provides NASA educational audiovisual materials by mail to teachers.

National Science Teachers Association
1840 Wilson Boulevard
Arlington, Virginia 22201-3000
Telephone: (703) 243-7100
URL: http://www.nsta.org
To address subjects of critical interest to science educators, the Association publishes a professional journal for each level of science teaching, a 52-page newspaper, NSTA Reports, and many other educational books and professional publications. Publications, books, posters, and other educational tools are available through the NSTA catalog and online.

National Space Society
1621 I Street NW
Suite 615
Washington, DC 20006
Telephone: (202) 429-1600
URL: http://www.nss.org
An independent educational non-profit organization dedicated to the creation of a space faring civilization. The Space Educator program provides resources for students and educators. *Ad Astra* is a print and online journal of the National Space Society.

The Planetary Society
65 North Catalina
Pasadena, California 91106
Telephone: (626) 793-5100
URL: http://www.planetary.org/home/
A non-profit organization which involves the world's public in space exploration through advocacy, projects, and education.

Science Service
1719 N Street NW
Washington, DC 20036
Telephone: (202) 785-2255
URL: http://www.sciserv.org/
Administers the International Science and Engineering Fair and the Intel Science Talent Search.

Space Camp
U.S. Space & Rocket Center
U.S. Space Camp/Aviation Challenge
P.O. Box 070015
Huntsville, Alabama 35807-7015
Telephone: (800) 637-7223
URL: http://www.spacecamp.com
Camps of varying duration for elementary and secondary students.

U.S. Space Foundation
Education Resource Center
310 14th Street
Colorado Springs, Colorado 80906
Telephone: (719) 576-8000
URL: http://www.spacefoundation.org/noflash.shtml
Assists teachers in gaining more knowledge about space by providing in-service training and graduate courses.

The Young Astronaut Council
5200 27th Street NW
Washington, DC 20015
Telephone: (301) 617-0923
URL: http://www.youngastronauts.org/yac/
Provides Mission Space, a five-unit printed science education curriculum for kindergarten through 9th grade.

THE INTERNET offers a growing number of sites useful for finding information on science fairs and science experiments. Most of the organizations listed in the previous section provide links to related sites from their web sites. In addition, it is also possible to use a search engine, such as AltaVista, DogPile, Google or Yahoo to locate additional sites.

Exploratorium
URL: http://www.exploratorium.edu/ls/pathfinders/scifairs/scifair-student.html
The Science Fair Home Page provides links for project ideas for space science from elementary grades through high school. The Books and Resources at the Learning Studio provide an extensive bibliography on science fairs.

FirstGov for Kids
URL: http://www.kids.gov/k_space.htm
The Space page provides links to many other governmental and educational sites that have K-12 space related activities.

Franklin Institute Online
URL: http://sln.fi.edu/tfi/activity
Activities Page lists resources for space related activities for grades K-8.

Internet Public Library
URL: http://www.ipl.org/div/kidspace/projectguide/topic.html
Kidspace at the Internet Public Library offers extensive resources for science projects including links to expert advice.

Laboratory for Atmospheric and Space Physics
URL: http://lasp.colorado.edu/education/space_weather/index.htm
A series of lessons and activities for use by teachers of elementary, middle school and high school students. It includes a listing of web sites about space weather and the sun.

NASA Kids' Club
URL: http://www.nasa.gov/audience/forkids/kidsclub/flash/index.html
Resource for space related activities for kids and teachers.

NASA Space Science Education Outreach
URL: http://ssdoo.gsfc.nasa.gov/education/
This site of the NASA Goddard Space Flight Center provides classroom and science project information.

NASA Space Science Education Resource Directory
URL: http://teachspacescience.stsci.edu/cgi-bin/ssrtop.plex
A convenient site to find NASA space products for the classroom.

Science Buddies
URL: http://www.sciencebuddies.org/
Provides space related project ideas, an ask an expert online bulletin board, and links to other resources.

Science News for Kids
URL: http://www.sciencenewsforkids.org/
The Science Fair Zone page provides links to ideas for space related projects for students ages 9-13.

Windows to the Universe
URL: http://www.windows.ucar.edu
Windows to the Universe is a learning system concerning the earth and space sciences for use by the general public sponsored by the University Corporation for Atmospheric Research (UCAR). Teacher resources can be found at:
URL: http//www.windows.ucar.edu/tour/link=/teacher_resources/main/activity.html

Location Codes for Items in the Library of Congress Reference Collections

<ChLit>	Children's Literature
<BusRR>	Business Reference Services
<MRR>	Main Reading Room
<MRR Alc>	Main Reading Room alcove
<N&CPR>	Newspaper and Current Periodicals Room
<SciRR>	Science Reading Room
<SciRR Dict>	Science Reading Room dictionary collection