

# Astronomy Education Resources and Materials for Teachers

Revised September 2000



## Astronomy Education Resource Center

1 Fine Pl.  
French Camp, MS 39745  
(662) 547-6865

[www.rainwater.astronomers.org](http://www.rainwater.astronomers.org)

## Objective

- A list of astronomy-related resources and materials of interest to teachers, especially in Mississippi.

## Overview

Prepared as a service for teachers by the Rainwater Observatory and Planetarium, French Camp, MS 39745; (662) 547-6865 or 547-6377; Web site: [www.rainwater.astronomers.org](http://www.rainwater.astronomers.org). This materials list was originally prepared for the Mississippi Association of Physicists meeting on November 11, 1990 at Delta State University. We will continue to update this resource list, and make it available on a permanent basis. Please send us your suggestions for additional materials and sources that might prove useful to teachers.

## Observatories, Planetariums, and Field Trips in Mississippi

These facilities will host school and other groups.

*Rainwater Observatory and Planetarium.* French Camp Academy, French Camp, MS 39745, (662) 547-6865 or 547-6377. Contact: James G. Hill, Director. Open by appointment to school and other groups. A mini-Stonehenge model, analema calendar, solar clocks, and a scale model solar system exhibit can be seen in the daytime, as well as solar viewing through various filters including H-alpha. Houses the largest meteorite collection in Mississippi. Teacher workshops and Backyard Astronomy courses are frequently offered. An annual amateur astronomical conference and star party is held at the Mid-South Star Gaze the weekend after Easter every year. Groups can use a variety of different scopes at night, including the largest in Mississippi, a 32". For an introduction to the constellations, a Spitz A-2 planetarium projector is used. There is a picnic area and covered pavilion available for group use and an outdoor amphitheater. A resource center of materials and library is maintained: books, slides, videos, posters, and models. Programs can sometimes be brought to your school. No charge, but donations appreciated.

*Speer-Lyell Observatory.* St. Andrew's School, Jackson, MS 39216, (601) 856-3033. Contact: John Applegate.

*Davis Planetarium,* 201 E. Pascagoula Street, Jackson, MS 39201, (601) 960-1550. A summer project of the Planetarium is its Student Space Station project. Contact: Gary Lazich.

*Wiley Planetarium.* Physics Dept., Delta State Univ., Cleveland, MS 38773. Contact: Dr. David Craig, (662) 843-9741.

*Kennon Observatory.* Dept. of Physics and Astronomy, Univ. of Miss., University, MS 38677, (662) 232-7046.

*Howell Observatory.* Dept. of Physics and Astronomy, Miss. State, MS 39762, (662) 325-2806, Contact: Dr. Patrick Lestrade.

*Millsaps College Observatory,* Dept. of Physics, Jackson, MS, (601) 354-5201 ext. 32.

*Holmes Community College Observatory,* Goodman, MS 39079, Contact: Michael Burchfield, (662) 472-2312

*Butts-Clark Observatory* of the Jackson Astronomical Association, located near Raymond, Contact: Wyatt Sanford, (601) 936-6452.

*Stennis Space Center Visitors Center and Teacher Resource Center.* Has a museum, film, and exhibits. Contact: Kelly Whitherspoon, Building 1200, Stennis Space Center, MS 39529, (662) 688-3338.

*Alabama Space and Rocket Center, One Tranquility Base, Huntsville, AL 35807, (800) 633-7280.* While not in Mississippi, this is worth a field trip. There is also a teacher resource center on site.

*Univ. of Southern Miss., Dept. of Physics & Astronomy, SS Box 5046, Hattiesburg, MS 39406, (601) 266-4934.* Contact: Dr. William Hughes.

*Jackson State Univ., Dept. of Physics, Box 17660, Jackson, MS 39217, (601) 968-7012,* Contact: Dr. Kunal Ghosh

*Observe-Dome Laboratories, 371 Commerce Park Dr., Jackson, MS 39213.* Manufacturers of observatory domes. They also have a historic 11-inch Clark refractor. Contact: Randy Clark.

Also the Physics departments of *Miss. Univ. for Women, Meridian Community College,* and several other Community Colleges. Contact your local community college or university's Physics Dept. to find out what they have to offer.

## Periodicals of Interest

*Sky and Telescope.* Sky Publishing Co., 49 Bay State Rd., Cambridge, MA 02318. *Sky & Telescope* is an essential tool for the amateur astronomer. The January issue has a Guide to the Heavens for the year, and the September issue has an annotated Resource Guide. They also have a useful catalog of books, maps, posters, and astronomy experiment materials. Monthly.

*Astronomy.* Kalmbach Pub. Co., Box 1612 Waukesha, WI 53187. *Astronomy Magazine,* beautiful, but at a lower technical level than *Sky & Tel.* Monthly.

*Exploring the Universe.* A Kalmbach astro-

calendar that contains poster pictures and astronomical information.

*Odyssey.* Cobblestone Pub. Co., 30 Grove St., Peterborough, NH 03458. Astro-science magazine aimed at middle school level. Lead article is usually very good. Contains games, projects, and puzzles.

*The Planetary Report.* Monthly magazine of the Planetary Society, 65 N. Catalina Ave., Pasadena, CA 91106.

*Mercury.* Monthly publication of the Astronomical Society of the Pacific (ASP). 390 Ashton Ave., San Francisco, CA 94112.

*The Universe in the Classroom.* An ASP publication that is free to teachers. Contains good bibliographies and projects. (See ASP under Slide Sources.)

*Astronomical Calendar.* The Astronomical Workshop, Furman Univ., Greenville, SC 29613. Good ephemeris and list of the sky happenings for the year.

*Abrams Sky Calendar.* Abrams Planetarium, Mich. State Univ., East Lansing, MI 48824. A monthly sky map and calendar of events for only \$9.

*Star Date.* A monthly astronomy magazine. Univ. of Texas – Austin, McDonald Observatory, 2601 Univ., Rm. 102, Austin, TX 78212.

*Space Telescope Institute Observer.* This is a quarterly HST update for educators. 3700 San Martin Dr., Baltimore, MD 21218.

Other periodicals to consult for info include: *Science News, Discover, Scientific American, and National Geographic.*

## **Astronomical Societies**

Can usually provide programs and observing opportunities.

### **Local Groups**

*Rainwater Astronomical Association* (French Camp): Meets the second Friday of the month at 7:15 P.M. in the Rainwater Planetarium, one mile southeast of French Camp. Contact: James Hill, (662) 547-6865, [rainwater.astronomers.org](http://rainwater.astronomers.org)

*Jackson Astronomical Association*: Meets the first Friday of the month at the Salvation Army building just off of Lakeland Dr. in Jackson at 7:30 P.M. Contact: Wyatt Sanford, (601) 936-6452. [jackson.astronomers.org](http://jackson.astronomers.org)

*Memphis Astronomical Society*, meets the first Friday of the month at 8:00 PM at Christian Brothers University. [www.memphisastro.org](http://www.memphisastro.org)

*Society of Low-Energy Observers* (Memphis). Contact: Kathey Nix, (901) 320-6320.

### **Regional, National, International Societies**

*The Astronomical League*. An umbrella group that provides materials and help to the amateur clubs of the country. They have audio/visual program materials, observing manuals, and other materials for clubs. They are a good resource for finding a local amateur astronomy group near you. [www.astroleague.org](http://www.astroleague.org)

*The American Association of Variable Star Observers*. They provide charts and coordinate amateur observations for professional use. Contact: Janet Mattei, 25 Birch Street, Cambridge, MA 02138.

*The Association of Lunar and Planetary Observers*. Provides coordination among serious amateurs studying solar system phenomena. Box 16130, San Francisco, CA 94112.

There are many more special interest astronomy organizations, both amateur and

professional, for more information contact James Hill, (662) 547-6865.

## **Slide and Video Sources**

Most have free catalogs.

*Finley-Holiday Film Corp*, Box 619, Dept. X90, Whittier, CA 90608. Excellent slide and video programs at quite reasonable prices.

*The Planetary Society*, 65 N. Catalina Ave., Pasadena, CA 91106.

*The Astronomical Society of the Pacific*, 390 Ashton Ave., San Francisco, CA 94112.

*Hansen Planetarium Publications*, 15 South State St., Salt Lake City, UT 84111, Super posters and slides.

*NASA Teacher Resource Center*, Stennis Space Center, MS. Send for their catalog of video and slide materials. You send them blank video tapes or unexposed 35 mm film and they will copy the materials you choose from the catalog at no charge. They also have other NASA information and brochures. Contact: John Wilson. The center also sponsors a series of science and math workshops during the year. It is also possible to arrange guest speakers through the Center Education Projects Officer, Dr. David Powe.

*NASA CORE*, Lorain County JVS, 15181 Route 58 South, Oberlin, OH 44074, 216-774-1051 ext.293. CORE is the national distribution center for NASA aerospace education materials.

*NASA TV*. Direct satellite TV transmissions from NASA Goddard Spaceflight Center. This shows NASA films, and airs briefings and has live coverage of all space missions. Available on analog satellite systems from satellite GE-2, on The Dish Network digital satellite at channel 213, and over the Internet. [www.nasa.gov/ntv](http://www.nasa.gov/ntv)

*Lunar and Planetary Institute*, Order Dept.,

3600 Bay Area Blvd., Houston, TX 77058-1113.

*Jet Propulsion Laboratory, Teacher Resource Center*, 4800 Oak Grove Drive, Mail Stop CS-530, Pasadena, CA 91109.

*Newell Color*, Los Angeles, CA (213) 380-2980. Slides and pictures from JPL.

*Monthly Mississippi E-TV Guide*. Foundation for Public Broadcasting, 3825 Ridgewood Rd, Jackson, MS 39211.

*Star Gazer*. A 5 minute weekly video sky guide; available from Stennis Space Center TRC or NASA Core and airs on Miss. ETV.

*Starfinder*. 15 minute middle level series on HST and astrophysics with a great lesson guide. Available from Maryland Public TV or NASA TV. (Rainwater Observatory can dub you a copy for the cost of tapes)

*Earth & Sky*. Airs daily on Public Radio in Mississippi.

## Books

only a personal favorite few are included here

*Stars*, Zim/Baker. This inexpensive Golden Nature Guide is still one of the best introductions to sky watching.

*Skyguide: A Field Guide To The Heavens*, Chartrand/Wimmer. Part of the Golden Field Guide Series.

*The Facts on File Dictionary of Astronomy*.

*The Astronomical Companion*, Guy Ottewell. This contains more information in a few pages than any book I know. The Astronomical Workshop, Furman Univ., Greenville, SC 29613.

*Burnham's Celestial Handbook*, Robert Burnham. Dover Publications, NY. The amateur astronomer's Bible. A bit dated, but still the most complete and readable. *A Field Guide to Stars and Planets*, Jay

Pasachoff, Houghton Mifflin. A Peterson Field Guide.

*All About Telescopes*, Sam Brown, Edmund Sci. Clear with great diagrams.

*The Universe Next Door*, Terry Holt, Scribners.

*The Mag 6 Star Atlas*, Terrence Dickenson. The Mag 5 Star Atlas is a simple beginner's version of the Mag 6. Order from Edmund Scientific, Gloucester Pike, Barrington, NJ.

*Sky Atlas 2000*, Wil Tirion, Sky Publishing.

*Journey Into Space*, Bruce Murray, Norton Co. The former head of JPL tells what it was like to be at the center of the birth of the space age.

*First Light*, Robert Preston, Plume Press. This is a book to let anyone feel what it is like to be an astronomer at Palomar. Don't miss this one!

*The Soul of the Night*, Chet Raymo, Prentice-Hall, 1985

*365 Starry Nights*, Chet Raymo, Prentice Hall, 1982. Delightful, readable source of observing projects and good source of transparency copies.

*Coming of Age in the Milky Way*, Timothy Ferris, William Morrow & Co., 1988

*The New Solar System*, Beatty, O'Leary, and Chaiken, Sky Publishing Corp., get the newest edition.

*Seeing the Sky, Seeing the Deep Sky, The Starry Room and Seeing the Solar System*, Fred Schaaf, Wiley Pub. Co. These books are full of projects, activities, and experiences in astronomy.

Every science classroom should have a general astronomy text on the shelf. There are many good ones, but I'm partial to Jay Pasachoff's *Astronomy: From the Earth to the Universe*, 4th ed., and William Kaufmann's *Universe*. Also check out these series for your library: *The Time-Life Voyage Through*

*the Universe* series and the *Rand McNally Library of Astronomical Atlases* are both excellent references.

## Web Sites

These links and more can be found at: [www.rainwater.astronomers.org/links](http://www.rainwater.astronomers.org/links)

Astronomy Picture of the Day [antwrp.gsfc.nasa.gov/apod](http://antwrp.gsfc.nasa.gov/apod) is a great site.

[spacescience.com/headlines](http://spacescience.com/headlines) has the latest news from the various NASA missions.

Solar information is available at [spaceweather.com](http://spaceweather.com)

Information and updates on the Galileo mission to Jupiter is available at [galileo.jpl.nasa.gov](http://galileo.jpl.nasa.gov)

Asteroid pictures from the NEAR mission to Eros are at [near.jhuapl.edu/iod](http://near.jhuapl.edu/iod)

Sky Publishing's web site has a lot of great information and links [skypub.com](http://skypub.com) and the have a weekly news that you can subscribe to at [skypub.com/news/news.html](http://skypub.com/news/news.html)

Daily images of the Sun are on the Big Bear Solar Observatory site: [www.bbso.njit.edu](http://www.bbso.njit.edu)

Fabulous views of Mars taken by the Mars Global Surveyor: [mars.jpl.nasa.gov/mgs](http://mars.jpl.nasa.gov/mgs)

Scientific American posts its articles on [www.sciam.com](http://www.sciam.com)

NASA Spacelink is a virtual library of NASA resources for educators. [spacelink.nasa.gov](http://spacelink.nasa.gov)

Thursday's Classroom provides the latest space science news and research for educator's with graded activities classrooms. [thursdayclassroom.com](http://thursdayclassroom.com)

Some space science news sites. They offer e-mailing lists you can subscribe to and receive daily links to breaking stories:  
[space.com](http://space.com)  
[spacedaily.com](http://spacedaily.com)  
[spaceflightnow.com](http://spaceflightnow.com)

## Astronomy Education Resources

*Astronomy Education Materials Resource Guide*, Ed. Dennis Sunal, 304 Graves Hall, Box 87023, Univ. of Alabama, Tuscaloosa, AL 35487. 200 pages of detailed descriptions of astronomy education resources.

*American Astronomical Society*. The AAS sponsors the Astronomer for a Day program at their conventions, has information on astronomy as a career, and also the Shapley guest lecture program. [www.aas.org](http://www.aas.org)

*The Universe at Your Fingertips* is a resource notebook for teaching astronomy available through the Astronomical Society of the Pacific. This is a wonderful set of activities. (See slide sources.)

*Astronomy: From the Earth to the Universe Instructor's Manual 4 ed.*, Jay Pasachoff, Saunders Pub. Co. This teacher's guide contains a great annotated listing of sources as well as a guide to the Project Universe tele-course.

*Teacher Resource to Enhance Astronomy Education*, Project Spica, Kendall/Hunt Publishing Co., 1994

NASA publishes Teacher's Guides with Activities in several space science areas. Some of these are *Space Based Astronomy*, *Exploring the Moon*, *Planetary Geology*, and *Exploring Meteorite Mysteries*. These are available from the Stennis Space Center Teacher Resource Center.

*NASA/JSC Traveling Exhibits Program*, Public Services Branch, Code AP4, Johnson Space Center, Houston TX 77058, 713-483-8622. Indoor exhibits shipped to you. Cost is for

freight and insurance only.

*Science Fiction for Teaching Science Concepts.* An annotated list has been made up by Valerie Smith at LSU. Contact James Hill at Rainwater Observatory for a copy, (662) 547-6865. If you have any personal favorites, please send them to us so we can add them to the list.

## **Catalogs & Materials**

with extra background information

*Astronomics*, 24 Tee Circle Suite 105, Norman, OK 73069. A great resource of clear explanations.

*MMI Corp. Astronomy Catalog*, Box 19907, Baltimore, MD 21211. Very complete listing of audio-visual material and Astronomy and Earth Science supplies.

*Field Guide of Meteorites*, Robert Haag, P.O. Box 27527, Tucson, AZ 85726. More than a catalog, some of the best pictures and descriptions of the types of meteorites anywhere.

*NASA Educational Publications*, NASA# PAM-101/7-87 Get from the Sup. Of Documents, Wash. DC.

*Orion Telescope Center*, 2450 17th Ave., Box 1158, Santa Cruz, CA 95061.

*Willmann-Bell Pub. Co.*, Box 35025, Richmond, VA 23235. The most complete listing of astronomy related books and charts; well annotated.

Here's a suggestion. Look in Sky and Telescope or Astronomy magazines and send off for any catalogs that look interesting. Some may cost a couple of dollars, but many are worth it, and most will subtract the price of the catalog from your first order.