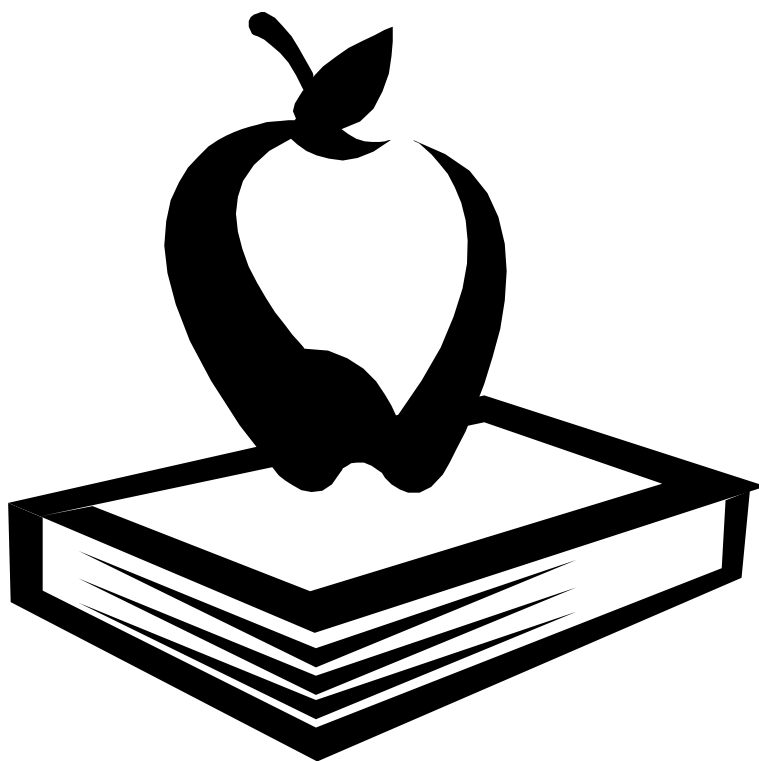




Ritter Planetarium Brooks Observatory



Teachers' Guide **2006-2007** *(Updated August, 2006)*

Ritter Planetarium & Brooks Observatory
The University of Toledo, Toledo OH 43606
Ph: (419) 530-2650 Fax: (419) 530-5167 E-mail: rpbo@astro.utoledo.edu
www.rpbo.utoledo.edu

***See page 11 to discover
how most of our programs
tie in with the science
standards and benchmarks
for both Ohio and Michigan.***

**Save money this year with
our Double Features!**

See page 12 for more details.

**We now offer comprehensive
post-program activity packets for
many of our most popular
planetarium programs.**

See page 12 for more details.

**You can now
schedule your school
program online
at our web page at:**

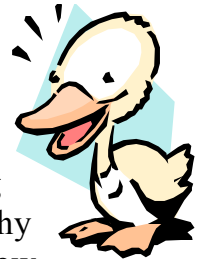
www.rpbo.utoledo.edu

Available School Programs, 2006-2007

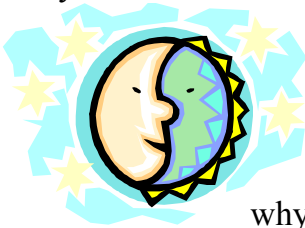
Most of our programs are delivered live by a member of our staff; others are pre-recorded. The central star projector, slides, and special effects are used to illustrate the presentation. Most programs include a look at the evening sky, highlighting some of the season's visible constellations and the locations of the visible planets. Many also include some discussion of the motions of the Earth and the changing sky. Unless otherwise stated, the total length of time spent at Ritter Planetarium, including visiting the displays in our lobby, the planetarium program, and a question and answer period, is approximately 1 hour. All double features take about 1½ hours. We have arranged them here in order of increasing age level; however, many of the programs can be scaled to a wide range of age levels and backgrounds.

Don't Duck, Look Up!*

Pre-School-1st Grade (taped)



Join Dudley, a precocious little duck, as he begins to learn about the sky along with a barnyard full of animal friends. Experience a thunderstorm, a sunset, and the shifting patterns of the nighttime stars. *Don't Duck, Look Up!* also covers constellations and why we have day and night. This program is a wonderful introduction to the sky. Please allow approximately **45 minutes** for your visit to the planetarium, including time to visit the displays in the lobby.



The Sky*

1st-2nd Grade (live)

The Sky is a live introduction to things we see in the sky, such as the Sun, Moon, planets, & stars. We will use the planetarium projector to demonstrate why we have day & night, talk about the Moon and its changing phases, & look at some of the easier to find constellations. Please allow approximately **45 minutes** for your visit to the planetarium, including time to visit the displays in the lobby.

Follow the Drinking Gourd*

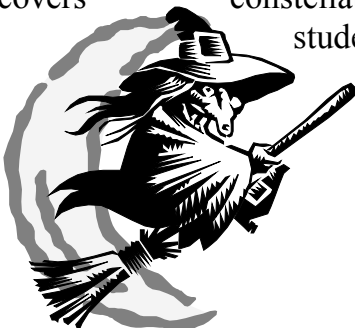
2nd-6th Grade (taped)

Produced by the New Jersey State Planetarium, *Follow the Drinking Gourd*, a historical program, discusses how African-American slaves used the constellations, mainly the Big Dipper, to find their way north to freedom. Students also learn the song they memorized to assist them in their trip. They will also hear the tale of one African-American family and their successful journey north to freedom. Program also includes a live sky talk.

Amazing Stargazing!!*

2nd-6th Grade (taped)

Produced by the Minneapolis Planetarium, *Amazing Stargazing!!* is a fun, fast-paced, and thrilling introduction to many aspects of the nighttime sky for children of all ages. This radio-style program covers constellations, shooting stars, comets, and moons, among other things. If your students have never studied astronomy, this program is a marvelous way to introduce it!



* Follow-up activities are available for these programs. See page 12 for details.

The Moon Witch*

2nd-6th Grade (taped)

The Moon Witch is a taped program produced by Bowen Productions. It is a fast-paced, entertaining, and informative in-depth look at the Moon. The program discusses why the Moon appears larger when it is near the horizon, why it seems like the Moon is following you as you walk at night, and why the Moon goes through phases. Finally, we travel with our MoonWitch pilot to the Moon and learn what it would be like to actually go there ourselves.

Crash Landing Louie

2nd-6th Grade (taped)

Designed to Meet Ohio & Michigan Science Standards!!!

Join the alien Louie on his journey through our Solar System. His ship develops a problem and he must search our solar system for somewhere safe to land. He finds the Earth and after some study, decides it's his best bet. He crashes on Earth and while waiting for rescue he learns all about the Earth and everything he can see on it. He'll need every piece of information about the sun and moon and how they move to safely guide his rescue party to him. Will they make it? Visit the Ritter Planetarium to see *Crash Landing Louie* and find out.

Crash Landing Louie is a multi-media planetarium presentation specifically designed to meet new science standards in both Ohio and Michigan. This program addresses standards and benchmarks for elementary age students and is targeted specifically towards 2nd-6th graders.

Because of the difference in needs for 2nd & 6th graders, this program is comprised of two parts. One component consists of a taped program that deals with the basics of all standards between 2nd & 6th grade. The second component will be a live section covering the night sky and reviewing any concepts needed to reinforce those topics specific to each grade level. Come and visit the Ritter Planetarium and help Louie find his way home.

Our Planet

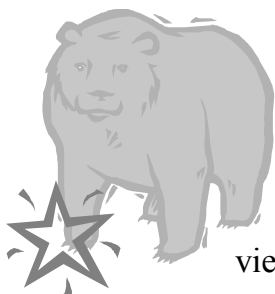
2nd-6th Grade (taped)

We spend so much time exploring outer space here at the planetarium that it's easy to forget we live on a planet in space, too. Our Planet takes a look at the Earth, and how it interacts with Sun and Moon. Along the way, we discover why we have seasons, wind and rain, tides and the Northern Lights.



Bear Tales (and Other Grizzly Stories)*

3rd-8th Grade (taped)



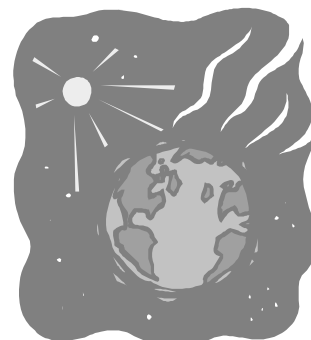
Bear Tales, produced by Joe Hopkins Engineering Productions, takes us on a family camping trip out to the dark skies of the forest. Grandpa Ben tells tall tails about the night sky, including Greek & Egyptian mythologies. This program introduces the constellations of the spring sky. It also demonstrates the different views one gets with binoculars, telescopes, or just the human eyes. *Bear Tales* gets

children involved with generous doses of humor and a sing-a-long.

* Follow-up activities are available for these programs. See page 12 for details.

Journey Through the Solar System*

3rd-8th Grade (live)



Journey Through the Solar System is an updated version of our classic school program. It begins with a sky talk, and then moves on to an examination of the Sun and a tour of the nine planets and their major satellites. Our current versions of *JTS* include some of the most recent images available from the Hubble Space Telescope, Mars Global Surveyor, and the Galileo spacecraft. The program also examines the minor members of our solar system: comets, asteroids, and meteors.



Lifestyles of the Stars

3rd-8th Grade (taped)

In this program we join a tour group, climb aboard a celestial tour bus, & visit some of the biggest, brightest, and hottest stars in the universe. This fun, educational program discusses how stars are born, live out their lives, and finally die. This program also includes a live sky talk.

So, You Want to Be an Astronomer...?

3rd-8th Grade (taped)

So, You Want to be an Astronomer...? is a Ritter Planetarium production that takes a look at backyard astronomy and examines what astronomers do and how they do it. It also looks at career options in astronomy. The program is the perfect introduction to the nighttime sky, amateur astronomy, and the life of astronomers for any student.



The Sky Tonight

3rd-8th Grade (live)

The Sky Tonight is a full-length live tour of the night sky for the date of your visit. Students will learn the secrets to finding objects in the current sky, including the visible planets, constellations, some deep sky objects, and the Moon. We'll also discuss some of the myths and legends associated with the celestial objects.

Celestial Motions*

4th-12th Grade (live)

Celestial Motions is a program that fully utilizes the capabilities of the central star projector. Your students will be introduced to the daily, annual, & precessional motions of the Earth; the reasons why we have seasons & eclipses; and why the Moon (and some of the planets!) goes through phases. We strongly advise that all students be exposed to this program, or one similar, at least twice during their academic career.

** Follow-up activities are available for these programs. See page 12 for details.*

Native American Skylore

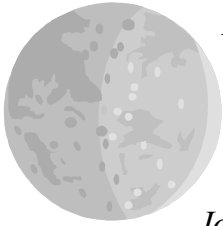
4th-12th Grade (taped)

Native American Skylore is a look at the nighttime sky, the seasons, the phases of the Moon, and the motions of the planet Venus as seen through the eyes of Native Americans. Included are such topics as Serpent Mound, Native American myths and legends, and how ancient records are still useful to astronomers today.



Ancient Worlds

4th-12th Grade (live)



Ancient Worlds looks at the barren, rocky worlds of the Solar System: Mercury and our Moon. This program looks at the evolution of these worlds, and also at comets and meteors as clues to the early history and birth of our solar system. The program also discusses the birth of our star, the Sun. While *Ancient Worlds* can be customized to any age, it is strongly recommended that the students be previously exposed to *Journey Through the Solar System*, or its equivalent.

Jovian Worlds

4th-12th Grade (live)

Jovian Worlds examines the four massive gaseous planets of our Solar System: Jupiter, Saturn, Uranus, and Neptune. This program discusses these worlds, their satellites, and their rings. It also contains the latest information on Pluto, and the possibility of trans-Plutonian worlds. Once again, we strongly recommend that students be previously exposed to *Journey Through the Solar System*, or its equivalent, to gain the maximum potential benefit from this program.



Skywatchers of Africa

6th-12th Grade (taped)

Since the beginning of human experience, the people of Africa have used their knowledge of the sky to meet their physical needs for survival, and for navigation. They have used the sky as a guide to build their societies, and for calendar making. The sky also shapes their spiritual lives, playing an important role in many ceremonies and providing clues to the deepest human questions. Our new show *Skywatchers of Africa*, produced by the Adler Planetarium, examines several cultures, past and present, from across the African continent. The show presents how these examples are similar to the experience of people all around the world.



Where Have all the Martians Gone?

6th-12th Grade (taped)

For over a hundred years, we have pondered about whether or not there is life on Mars. *Where Have all the Martians Gone?* examines our ever-changing understanding of the “Red Planet,” and whether or not it has, or ever had, life on it. The program also looks at the recent discoveries made by the Mars Pathfinder and Global Surveyor, and outlines our planned missions to Mars, perhaps the most intriguing of all the planets.

* Follow-up activities are available for these programs. See page 12 for details.

The Weather Out There

6th-12th (taped)

We all know how difficult the weather can be. But did you ever wonder what causes it? In this program, we learn why we have weather here on the Earth and what the weather would be like if we lived on other planets. At this program, your group can experience twisters on the Earth, dust storms on Mars, and acid rain on Venus!



The Dawn of Astronomy

6th-12th Grade (taped)

Journey back in time to discover why the pyramids of Egypt and Stonehenge in England were built. Your students will see the splendor of the newly raised pyramids and watch as the Sun rises over the Heel Stone at Stonehenge. The incredible achievements of early man in measuring the length of the year, developing a concept of the Zodiac, and predicting exactly how the Sun and Moon move in the sky are celebrated in *The Dawn of Astronomy*, produced by the Hansen Planetarium.

Navigating With Lewis & Clark*

6th-12th Grade (taped)

How did Lewis and Clark know where they were when they were in the middle of nowhere? Find out when you see this new planetarium program. You'll learn how Lewis and Clark used the positions of the Sun and other celestial objects to estimate where they were, & you'll see how you can do it, too.

Serpents of the Sun

6th-12th Grade (taped)

Produced by Youngstown State University & the Boonshoft Museum of Discovery, *Serpents of the Sun* examines the rich cultures and astronomical heritages of several Native American civilizations that made Ohio their homes. The program examines several burial mounds in central and southern Ohio and SunWatch, a Native American Stonehenge, located near Dayton, Ohio.



The Lives & Deaths of Stars

6th-12th Grade (live)

The Lives & Deaths of Stars introduces stellar evolution and the origin of the elements from which we are made. It is exciting to think that the carbon in our bodies was once inside a star, and came to us through a stupendous supernova explosion. This program also covers the sizes and colors of the stars.

The Star Gazer

6th-12th Grade (taped)

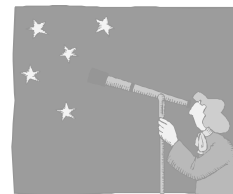
The Star Gazer is an exciting new program produced by the Great Lakes Planetarium Association that explores how imagination, curiosity, & scientific thought have allowed us to begin to understand some of the deepest mysteries of the universe. *The Star Gazer* is narrated by Nichelle Nichols, Star Trek's Lt. Uhura. While she journeyed to the stars in TV and movies, in this planetarium program she shows us how we can "visit" the stars with telescopes and our minds.

** Follow-up activities are available for these programs. See page 12 for details.*

Women in Astronomy

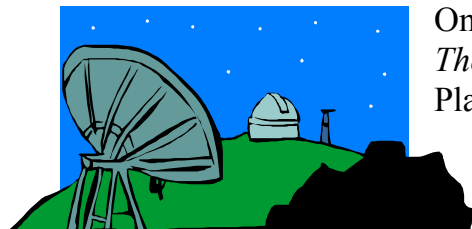
9th-12th Grade (taped)

Women in Astronomy, discusses the contributions to astronomy made by women. Often the names of women in astronomical history are left out. This program points out the rich history of women in this scientific field. Students will learn that dedicated women made many important discoveries —discoveries without which astronomy might be decades behind.



Is There Anybody Out There?

9th-12th Grade (taped)

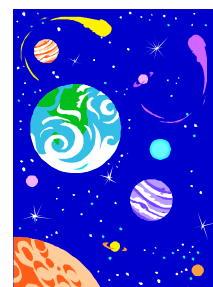


One of the most basic questions ever asked by human beings is: *Is There Anybody Out There?* The newest program produced by the Ritter Planetarium staff is about the Search for Extra-Terrestrial Intelligence, or SETI. It looks at how astronomers search for alien civilizations, where they think they might be found, and what they think their odds of success are. *Is There Anybody Out There?* shows that it isn't always the answers that are important in science. What is important is asking the questions.

In the Beginning

9th-12th Grade (live)

In the Beginning discusses the overall arrangement of matter into planets, stars, galaxies, clusters of galaxies, and the universe; and how we think it got that way. We cover the Big Bang and the expanding universe, concepts of time and space, and what will happen in the next 20 billion years. This program is best for showing students the process of science, because it presents many ideas that are still uncertain or only questions.



Design Your Own Program

Please contact us if none of these programs meet your needs. We would be happy to develop a program to meet your special needs or circumstances. In the past we have developed custom programs for such diverse disciplines as English, history, and geography. When requesting a custom program, please be advised that we usually require at least two week's advance notice.

Fees for all school programs are \$5.00 PER STUDENT.

Accompanying adults are admitted free.

There is a minimum fee of \$100.00 for groups with 20 students or less.

Fees for all NON-SCHOOL private programs are \$5 per adult and \$4 per child (12 and under). There is a minimum fee of \$125 for non-school groups with fewer than 20 people in attendance.

Still Unsure What Program to Request for Your Group??

If you are still unsure as to what program to request for your group, please use the chart below. The programs listed are always appropriate for that age group.

Grade	Program(s)
Preschool, Kindergarten, & 1 st	Don't Duck, Look Up!!
2 nd & 3 rd	Follow the Drinking Gourd The Moon Witch Crash Landing Louie
4 th , 5 th , & 6 th	Crash Landing Louie Amazing Stargazing!! Journey Through the Solar System Crash Landing Louie
7 th & 8 th	Celestial Motions Navigating With Lewis & Clark Native American Skylore
High School & Beyond	Is There Anybody Out There?? The Lives & Deaths of Stars Navigating With Lewis & Clark

If you have any further questions about a program, or would like suggestions on which program may be best suited for your students, please contact the Planetarium Office by phone at (419) 530-2650.

Other Tours & Activities

You may also request one of our additional tours or activities. You may choose from an Astronomical Scavenger Hunt or a tour of one of our observatories. Each additional activity will add approximately 20 minutes per 30 students.

Astronomical Scavenger Hunt

Give your students' curiosity a boost by letting them attempt our Astronomical Scavenger Hunt. The hunt utilizes the hands-on displays in the planetarium lobby and is done before the planetarium program. Students may work alone or in pairs, depending on the size of the group. A member of our planetarium staff will go over the answers to the Astronomical Scavenger Hunt. *\$1.00 per child; grades 3 and up*

Ritter One-Meter Telescope Tour

Very few people get the opportunity to visit a large research-grade telescope. You can give your students that chance by requesting a tour of the Ritter One-Meter Telescope. Your students will learn what a telescope of that size is used for, they will see the instruments used along with the telescope, and learn how the telescope works. *\$2.00 per child; grades 5 and up*

Evening Observing at the Brooks Observatory

If you schedule an evening program at the planetarium, you may also request observing afterwards at the Brooks Observatory. An observing session may also be scheduled separately. Observing is *only* done on clear nights. Should your scheduled observing session be canceled due to adverse weather, no charge will be administered. This would be a wonderful opportunity for your students to use a real telescope and view objects they may never see otherwise. *\$2.00 per child after a planetarium program; \$3.00 per child when observing only is requested.*



Contacting Us

To schedule your program, please call the Planetarium Office at (419) 530-2650. If you have specific questions about a program, or would like suggestions on which program may be best suited for your students, please contact Mr. Alexander T. Mak at (419) 530-4641. Or visit us on the World Wide Web at www.rpbo.utoledo.edu

Ohio and Michigan Science Standards & Benchmarks

With today's focus on accountability and standards in the classroom, even field trips are being held accountable. The Ritter Planetarium acknowledges this need and has created a program specifically designed to address the needs of second through sixth teachers in both Ohio and Michigan

Numerous science standards and benchmarks are discussed and met throughout our entire complement of programming. We have created a comprehensive database of all of our programs that specifically explain which standards are met by each program. The degree of discussion is ranked on a scale with a 1 being a main topic of the program, a 2 means it is covered in detail; while a 3 means it is briefly discussed during the program. Our entire library of programming has been evaluated in this way, for the state science standards and benchmarks of Ohio and Michigan, as well as the Toledo Diocese guidelines. To find out more or to get a recommendation of a specific program to meet your needs, please call us at (419) 530-2650, or explore each show's standards on our website at www.rpbo.utoledo.edu/standards.html.

Crash Landing Louie, is a multi-media planetarium presentation specifically designed to meet new science standards in both Ohio and Michigan. This program addresses standards and benchmarks for elementary age students and is targeted specifically towards 2nd-6th graders.

Because of the difference in needs for 2nd & 6th graders, this program is comprised of two parts. One component consists of a taped program that deals with the basics of all standards between 2nd & 6th grade. The second component will be a live section covering the night sky and reviewing any concepts needed to reinforce those topics specific to each grade level. Come and visit the Ritter Planetarium and help Louie find his way home.



Visit www.rpbo.utoledo.edu/standards.html to see how a trip to the Ritter Planetarium meets Ohio, Michigan, & Toledo Dioceses Science Standards and Benchmarks!

Post-Program Activity Packs

Are you looking for a good way to recap what your students have learned during a visit to the Ritter Planetarium? We now offer comprehensive post-program activity packs for many of our most popular school programs. These activity packs are a great way to go over everything your students have learned at the planetarium. They can also be used prior to your next visit, or in addition to an astronomy unit. And best of all, **they're free!!** We offer post program activity packs for the following programs:

Don't Duck, Look Up!!
The Sky
Follow the Drinking Gourd
The Moon Witch
Amazing Stargazing!!

Journey Through the Solar System
Bear Tales (& Other Grizzly Stories)
Celestial Motions
Navigating With Lewis & Clark

We hope you will find these free activities useful, educational, and fun. If you would like to receive program follow-up activities, please let us know when you schedule your program. One activity pack per class.

*All Post Program Activity Packs may be downloaded at
www.rpbo.utoledo.edu/classroomactivities.com*

** Programs that have follow-up activities available are marked throughout this pamphlet with an asterisk (*).*

Double Features

In order to maximize your visit to the Ritter Planetarium, most of our programs are available in Double Feature packages. These Double Features allow you and your students to see two programs **during one visit** at a reduced rate. We usually recommend one live and one pre-recorded program. Journey Through the Solar System, Crash Landing Louie, Celestial Motions, and The Moon Witch are among our most popular program to double up. Please contact Mr. Alexander T. Mak at (419) 530-4641 for more information. Fees for Double Features are \$7.00 per child (accompanying adults are free). For groups with less than 20 students, there is a minimum fee of \$140.00.

Other Things to Do at the University of Toledo & Toledo Area

Contact us if you would like a tour of the campus or if you would like to have lunch at the university's Student Union. If you are coming from out of town, contact us for a list of other wonderful educational opportunities the Toledo area has to offer. Make the most out of your trip!!

Celebrate
Black History Month
with

Follow The Drinking Gourd

2nd through 6th Grade (taped)

Produced by the New Jersey State Planetarium, *Follow the Drinking Gourd*, a historical program, discusses how African-American slaves used the constellations, mainly the Big Dipper, to find their way north to freedom. Students also learn the song they memorized to assist them in their trip. They will also hear the tale of one African-American family and their successful journey north to freedom. Program also includes a live sky talk. *An activity packet is available with this program.*

or...

Skywatchers of Africa

6th through 12th Grade (taped)

Since the beginning of human experience, the people of Africa have used their knowledge of the sky to meet their physical needs for survival, and for navigation. They have used the sky as a guide to build their societies, and for calendar making. The sky also shapes their spiritual lives, playing an important role in many ceremonies and providing clues to the deepest human questions. Our new show, *Skywatchers of Africa*, produced by the Adler Planetarium, examines several cultures, past and present, from across the African continent. The show presents how these examples are similar to the experience of people all around the world.

Schedule early! February is a very busy month.

Holiday Programs

Available in Mid-November

Santa's Secret Star

K-3rd Grade

The night sky is a very big place. It's easy to get lost among all those stars. Even Santa Claus got lost once. Find out how Santa used the stars to find his way home to the North Pole, and how you can use the stars to find your way around, too! This program not only covers the most prominent Winter constellations, but also explains seasons and why we have day and night. *Santa's Secret Star* also includes a live sky talk, and is a perfect way to introduce your students to the planetarium.



Holiday Lights

4th-12th Grade

With each passing night, the Sun is setting earlier and earlier; our nights are getting longer, and our days colder. Soon the holiday season will be with us. On these clear, dark nights we see the same stars our ancestors saw when their solstice celebrations established many of our modern holiday customs. *Holiday Lights*, a pre-recorded program, traces the origins of our calendar and our holiday celebrations, and examines how they are both related to the flickering points of light we call the stars.



Public Programs

We also offer public programs Friday nights at 7:30 (8:30 in the Summer). These programs vary in topics; past program topics have included what is visible in the sky that night, archaeoastronomy, and recent astronomical happenings. We also offer Saturday afternoon children's programs at 1:00. These children's programs are not only educational, but very entertaining as well.

Scout Programs

Ritter Planetarium also offers specialized Boy Scout, Girl Scout, and Cub Scout & Brownie programs. These programs cover the requirements for the Boy Scouts' Astronomy Merit Badge and the requirements in the Girls Scouts' Space Exploration Unit. Additionally, we offer a special program for Brownies and Cub Scouts.

Discovery Corner

Discovery Corner is Ritter Planetarium's gift shop. In our gift shop you can purchase Star & Planet Locators, astronomy books, posters, and a host of other fun and educational items. Discovery Corner is open one half hour prior to all public programs. You may also request it be open for your school group.

**If you would like to be added to our School Mailing List, please fill out the form below.
Either mail it to the address listed, or return it to your planetarium presenter
when you attend a planetarium program.**

Please add me to your School Mailing List

Name: _____ Grade Taught: _____

School: _____

School Address: _____

Would you like to be added to our electronic mailing list? If so, please include your email address: _____

Return to The University of Toledo; Ritter Planetarium; Mail Stop 113; Toledo, Oh 43606