



# Maynard F. Jordan Planetarium

## ZUBENELGENUBI'S MAGICAL SKY

Edited by Aaron Schlosser

Cosmic Classroom.....	3
The Program – <i>Zubenelgenubi's Magical Sky</i> .....	3
State of Maine Learning Results Guiding Principles .....	3
State of Maine Learning Results Performance Indicators .....	4
Performance Indicators Snapshot .....	5
Cosmic Classroom Activities:	
Earth Is Turning .....	7
Matching Game.....	9
Make a Mobile.....	11
The Sun Is a Star .....	13
Stars Form Patterns in the Sky.....	15
The Sun Appears to Rise and Set.....	17
Vocabulary List .....	19
The Universe At Your Fingertips .....	21
Some good books to use with <i>Zubenelgenubi's Magical Sky!</i> .....	21
Some good web sites to use with <i>Zubenelgenubi's Magical Sky!</i> .....	22
Lessons From The World Wide Web.....	22
Astronomy Web Sites Worth a Visit .....	23

### **Mission Statement:**

The mission of the Maynard F. Jordan Planetarium of the University of Maine is to provide the University and the public with educational multi-media programs and observational activities in astronomy and related subjects.

Material within this Cosmic Classroom package is copyrighted to the University of Maine Maynard F. Jordan Planetarium. Educators are granted permission to make up to 9 copies for personal use. Express written permission is required, and usually will be freely granted, for duplication of 10 or more copies, or for use outside the classroom.



# Cosmic Classroom

Looking for fun and interesting space activities? The planetarium staff has prepared a collection of materials we call the Cosmic Classroom for you to use before and/or after your visit. These materials are entirely for use at your own discretion and are not intended to be required curricula or a prerequisite to any planetarium visit. The Cosmic Classroom is one more way that the Jordan Planetarium extends its resources to help the front line teacher and support the teaching of astronomy and space science in Maine schools.

The lessons in this Cosmic Classroom have been edited and selected for the range of ages/grades that might attend a showing of this program at the Jordan Planetarium. Those activities that are not focused at your students may be adapted up or down in level. Our staff has invested the time to key these materials to the State of Maine Learning Results in order to save you time.

The State of Maine Learning Results performance indicators have been identified and listed for the program, the Cosmic Classroom as a package, and each individual activity within the package. The guide also includes related vocabulary and a list of other available resources including links to the virtual universe. We intend to support educators, so if there are additions or changes that you think would improve, PLEASE let us know.

Thank you, and may the stars light your way.

*The Maynard F. Jordan Planetarium Staff*

## The Program – *Zubenelgenubi's Magical Sky*

Change is a common theme with the Moon, the color of the sky, and the way the Sun appears to move through the sky. We watch as the Sun goes down and the stars come up, and the way the stars form patterns overhead that we call constellations. In this lively participatory program, cartoon characters talk to us as the daytime and nighttime sky are explored. The planetarium host is Zubenelgenubi (Zubee for short), and introduces visitors to the planetarium and the colorful characters enjoying the sky.

During the show, the audience is introduced to Tracy the telephone pole, Hydro the hydrant, and a talking Sun and Moon. During the program a point-out of constellations is followed by a story and stormy sky. Students pitch in to help to blow the storm away and the program ends with a peaceful sunrise and new day.

We are very glad that you have chosen to visit our planetarium with your group. We hope that this guide will help you prepare your group or help you review their experience at the University of Maine's sky theater.

## State of Maine Learning Results Guiding Principles

The lessons in this guide, in combination with *Zubenelgenubi's Magical Sky*, will help students to work towards some of the Guiding Principles set forth by the State of Maine Learning Results. By the simple act of visiting the planetarium, students of all ages open an avenue for self-directed lifelong learning. A field trip encourages students to think about learning from all environments including those beyond the schoolyard. A Jordan Planetarium visit also introduces visitors to the campus of the largest post-secondary school in Maine and encourages them to think of this as a place which holds opportunities for their future education, enjoyment and success.

Other sites on the University campus, including three museums, explore a variety of subjects. A field trip can contribute to many different disciplines of the school curriculum and demonstrate that science is not separate from art, from mathematics, from history, etc. The world is not segregated into neat little boxes with labels such as social studies and science. A field trip is an opportunity for learning in an interdisciplinary setting, to bring it all together and to start the process of thinking. For a more complete discussion of field trips, please visit the Jordan Planetarium web site at [www.umainesky.com](http://www.umainesky.com).

If used in its entirety and accompanied by the Planetarium visit this Teacher Guide will help students to:

Become **a clear and effective communicator** through

- A. oral expression such as class discussions
- B. listening to classmates while doing group work, cooperation, and record keeping.

Become **a self-directed and life long learner** by

- A. introducing students to career and educational opportunities at the University of Maine and the Maynard F. Jordan Planetarium.
- B. encouraging students to go further into the study of the subject at hand, and explore
- C. giving students a chance to use a variety of resources for gathering information

Become **a creative and practical problem solver** by

- A. asking students to observe phenomena and problems, and present solutions
- B. urging students to ask extending questions and find answers to those questions
- C. developing and applying problem solving techniques
- D. encouraging alternative outcomes and solutions to presented problems

Become **a collaborative and quality worker** through

- A. an understanding of the teamwork necessary to complete tasks
- B. applying that understanding and working effectively in assigned groups
- C. demonstrating a concern for the quality and accuracy needed to complete an activity

Become **an integrative and informed thinker** by

- A. applying concepts learned in one subject area to solve problems and answer questions in another
- B. participating in class discussion

## State of Maine Learning Results Performance Indicators

In conjunction with the Maynard F. Jordan Planetarium show *ZubeneIgenubi's Magical Sky* this guide will help you meet the following State of Maine Learning Results Performance Indicators in your classroom.

### Grades Pre. K-2

#### **Science and Technology –**

##### D. Continuity and Change

- #4. Describe ways in which individual objects are alike and different.

##### E. Structure of Matter

- #2. Describe some physical properties of objects.
- #3. Group objects based on observable characteristics.

##### G. Universe

- #1. Explain the cycles of day/night and of the seasons.
- #3. Demonstrate an understanding that the Sun is one of many stars in the universe and is the closest star to Earth.

##### H. Energy

- #1. Demonstrate an understanding that the Sun gives off light and heat energy.

##### K. Scientific Reasoning

- #3. Make observations.

#6. Discover relationships and patterns.

L. Communication

#1. Describe and compare things in terms of number, shape, texture, size, weight, color, and behavior.

#6. Use objects and pictures to represent scientific and technological ideas.

M. Implications of Science and Technology

#1. Describe how legends, stories, and scientific explanations are different ways in which people attempt to explain the world.

**Mathematics –**

G. Patterns, Relations, Functions

#1. Recognize, describe, extend, copy, and create a wide variety of patterns.

**Visual and Performing Arts –**

A. Creative Expression

#2. Experiment with art forms.

#10. Demonstrate ways in which the arts can be used in interdisciplinary activities.

## Performance Indicators Snapshot

### The Show

#### **Grades Pre.K-2.**

Science and Technology

G. #1, #3, H. #1, M. #1

### The Guide

#### **Grades Pre. K-2.**

Science and Technology

D. #4, E. #2, #3, H. #1, G. #1, #3, K. #3, #6, L. #1, #6

Mathematics

G. #1

Visual and Performing Arts

A. #2, #10





## Earth Is Turning

### Objectives and State of Maine Learning Results Performance Indicators:

1. Learners will be able to explain the cycle of day and night (Pre.K-2. Science and Technology. G. #1.)
2. Learners will be able to describe how the turning motion of the Earth causes day and night (Pre.K-2. Science and Technology. G. #1.)
3. Learners will be able to demonstrate that the light we see during the day comes from the Sun (Pre. K-2. Science and Technology. H. #1.)
4. Learners will be able to show that music can be used in multiple subject areas (Pre. K-2. Visual and Performing Arts. A. #10.)

### The General Idea:

Where does the Sun go when it sets? Is it really gone until the next morning? This is a class participation demonstration through which students learn that the Sun shines on Earth at all times and makes day for different people in different places. In one complete turn each child experiences both day and night. (Morning and evening may be introduced as the times between day and night.)

### Getting Ready:



- Students should know that Earth is a giant ball on which people, plants and animals live together.
- Review the following song to the tune "Are You Sleeping" which can be Sung during activity.

Earth is turning. Earth is turning.  
All the time. All the time.  
Day becomes the nighttime.  
Night becomes the daytime.  
On and on. On and on.



### What You Need:

Bare bulb lamp  
Shades to darken room  
Make a placard for the Sun to place near bulb  
Make a placard for the Earth to place on floor for students to step around

### What To Do:

1. Have the light shine at moderate brightness in front of a darkened classroom. To help pretend it is the Sun, place placard of the Sun near it.
2. Arrange five or six students in a circle, facing outward, in the center of the classroom. Have the students link arms at the elbows. The circle should be somewhat tight. Tell them they will pretend to be Earth turning. Give each student a turn in the circle.
3. Have students slow baby step to their left. Those facing the Sun are in daytime, and will see it go off to the right. Those not facing the Sun are in nighttime, and will see it appear from the left.
4. Repeat several times while directing observation of how it seems like the "Sun" is moving from left to right when it's really "Earth" turning.
5. A globe may come in handy for further demonstration.
6. Try singing "Earth Is Turning" to help designate time spent turning.

What To Discuss:

1. Stop "Earth" to ask for those students having day or night to stand on tip toes (raising hands may be difficult).
2. When "Earth" has made one complete turn (one rotation), ask the question "How long does it take for the world to do what you just did?" (it takes Earth 24 hours to complete one rotation.)
3. Ask students to name some things seen in the sky during day and/or night.
4. The Sun is the brightest star in the sky. It is the only star visible during the day. Other stars can be seen in the sky, but only after the Sun is setting or has set, because that is when it is dark enough.



## Matching Game

### Objectives and State of Maine Learning Results Performance Indicators:

1. Learners will be able to compare two objects in the universe and determine whether they are the same type of object. (Pre. K-2. Science and Technology. D. #4.)
2. Learners will be able to describe the physical properties of celestial bodies and group them based on those properties. (Pre. K-2. Science and Technology. E. #2., E. #3., L. #1.)

### The General Idea:

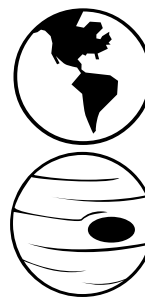
This activity exercises recognition skills by matching objects in the sky that students may not realize are very similar. An example of this is Sun/star, Earth/planet, and different phases of the Moons. Emphasis can be placed on the idea that even though objects don't always look the same, as a whole they may not be all that different.

### Getting Ready:

1. Explain to students that the Sun and stars are shaped like balls, but are often represented with points. This is a good time to show them some drawings of stars and some actual photographs of stars.
2. Explain to students that even though the shape of the Moon doesn't look round all the time, it is always shaped like a ball. A demonstration about moon phases may be helpful here for very young students.
3. Planets look different from one another and are made of different substances, but they are all planets.

### What You Need:

Pictures of the Sun, stars, Earth, planets, and Moon phases.  
Crayons, markers or colored pencils  
Scissors  
3x5 index cards



### What To Do:

1. Have students look at the different pictures and show them how they are the same.
2. Have students color their own versions of the pictures you showed them on the 3x5 cards.
3. You may organize "Match Game" for a class activity, small group, or one-on-one using the cards that the student have constructed. For young students, the pictures themselves may be used and you can do away with step 2 all together.
4. Arrange a mixed group of cards on a table and ask student(s) to pick out which is the Sun/star, Moon or Earth/planet.
5. Arrange a mixed group of cards/pictures and ask student(s) to pick out which is not the Sun/star, Moon or Earth/planet. OR have students make groups of one, excluding all others. (i.e. all planets or all phases of the moon)
6. Repeat as desired with as many cards/pictures as appropriate for the age of your students.

What To Discuss:



1. The Sun is a star, and like all stars, is shaped like a ball. Even though they are sometimes drawn with points, stars are not pointed.
2. The Moon doesn't always look the same, but the different shapes we see repeat again and again over time.
3. Earth is not the only planet, but each of the nine planets are different.

Continuations/Extensions:

1. Keep a moon journal to track the changing moon phases.



# Make a Mobile

## Objectives and State of Maine Learning Results Performance Indicators:

1. Learners will be able to identify various objects in the universe, including planets, stars, moons, and the Sun (3-4. Science and Technology. G. #1.)
2. Learners will be able to create a mobile (Pre. K-2. Visual and Performing Arts. A. #2., A. #10)

## The General Idea:

Each student will make a mobile to hang over their desk or take home. The three components of the mobile represent the Sun, Earth and Moon, but may be generalized as star, planet and moon (natural satellite of a planet). Through discussion, the students find out what factors make stars, planets and moons different kinds of objects.

## Getting Ready:

- Sun, Earth and Moon may be introduced before, during or after construction of the mobile, but we recommend doing this before.
- Some facts the students should know are: the Sun is a star, but not the only one; stars are many different colors and sizes; the Sun is the nearest star to Earth; real stars do not have points; Earth is one of nine planets in our solar system; we live on Earth with all other animals and plants; Earth is the only planet that has life on it; all planets in our Solar System orbit the Sun; the Moon orbits Earth, but other moons orbit other planets.



## What You Need:

Pictures and books about the Sun, stars, planets and moons for the students to look through

Crayons

Markers

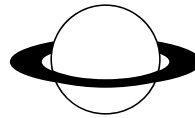
Colored pencils

Scissors

String or yarn

Hole puncher

Glue, tape, or paste



## What To Do:

1. Have students draw their own version of the Earth or other planet.
2. Cut out shapes and punch holes where needed.
3. String parts together and hang over student's desk.



## What to Discuss:

1. The Sun, Earth and Moon are each only one example of a star, planet, and natural satellite.
2. The nine planets in our Solar System are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto.

3. If desired, try using a mnemonic to remember the order of the planets. Use one of these or make up others:  
My Very Elegant Mother Just Served Us Nine Pizzas; Mary's Violet Eyes Make John Stay Up Nights, Period;  
Many Very Early Men Ate Juicy Steaks Using No Plates (this one includes the asteroid belt between Mars and Jupiter); Mr. VEM J. SUN and his dog Pluto.
4. In basic terms, stars, planets and moons are different from each other in that stars shine while planets and moons reflect Sunlight. Planets move around stars, and moons move around planets.



## The Sun Is a Star

Based on The Sun is a daytime star, by Susan Reynolds and Onondaga-Cortland-Madison Board of Cooperative Educational Services math, Science and Technology.

### Objectives and State of Maine Learning Results Performance Indicators:



1. Learners will be able to identify objects that are in the daytime and nighttime sky (Pre.K-2. Science and Technology. G. #1)
2. Learners will be able to identify the Sun as the only star visible during the day (Pre.K-2. Science and Technology. G. #3.)
3. Learners will be able to demonstrate that the light we see during the day comes from the Sun (Pre. K-2. Science and Technology. H. #1.)

### The General Idea:

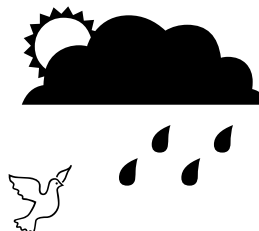
When discussing astronomy we often mention the Sun, moons, stars and planets, but for many young students this may inadvertently cause them to believe that the Sun is not a star. The following activity is designed to help students remember that the Sun is a star we can see during the day.

### Getting Ready:

- Ask the students to think about, and discuss, when the Sun can be seen.

### What You Need:

Paper  
Crayons  
Markers  
Sunny day



### What To Do:

1. Take the students outside on a Sunny day to observe the daytime sky (before going outside, emphasize to the students that they should **never** look directly at the Sun because it could hurt their eyes)
2. Have the students write down, or write down for your students, what they see out during the day
3. Talk to the students about what they think the Sun is, what it's made of, etc.
4. Explain that stars are made of the same things that the Sun is made of; that the Sun is the same as many of the stars we see at night. In fact, the Sun is a star that is closer to us than all other stars and that's why it looks so much bigger.
5. Have students make a list of what they see at night and have a class discussion about the differences between this list and the list of things they see during the day.
6. Have each student fold a piece of paper in half
7. Have students draw the daytime sky on one side of the piece of paper and the nighttime sky on the other side. Students can use these drawings to remember the differences in the daytime and nighttime sky as well as remembering that the Sun is a star.



What To Discuss:

1. What did you observe in the daytime sky?
2. What did you observe in the nighttime sky?
3. What can be seen in both the daytime and nighttime sky?



## Stars Form Patterns in the Sky

Based on Stars can form patterns in the sky. The Big and Little Dippers are examples of star patterns. by Susan Reynolds and Onondaga-Cortland-Madison Board of Cooperative Educational Services math, Science and Technology.

### Objectives and State of Maine Learning Results Performance Indicators:

1. Learners will be able to discover that the stars form patterns in the sky. (Pre.K-2. Science and Technology. K. #6., Mathematics. G. #1.)
2. Learners will be able to make observations about the night sky. (Pre. K-2. Science and Technology. K. #3.)
3. Learners will be able to use pictures to represent the constellations (Pre. K-2. Science and Technology. L. #6.)

### The General Idea:

Standing under the sky on a dark night and gazing at the stars is an incredible sight. But how do we tell the difference between this star and that? As adults we use constellations to more easily identify stars and groups of stars. This idea of stars making a picture correlates with young students love of dot-to-dot pictures. After students have become familiar with activities such as dot-to-dot's and geo-boards, you can use the following activity to link these mathematical concepts with science.

### Getting Ready:

- Familiarize students with dot-to-dot puzzles and geo-boards

### What You Need:

Black construction paper  
Popcorn  
Glue or paste  
Crayons, chalk, etc.

### What To Do:

1. On a sheet of black construction paper, have the students put dots of glue or paste at random
2. Have the students place pieces of popcorn on the glue or paste to form a "constellation".
3. When the glue or paste has dried, students can connect the "dot's" of popcorn with chalk or crayon to show others what their constellation looks like

### What To Discuss:

1. How are the students "constellations" like the ones in the sky? How are they different?

### Continuations/Extensions:

1. For older students, have them write a story about their constellation
2. Take photocopies of known constellations and have the students draw their own picture of the constellation (for example, the Big Dipper is part of Ursa Major, the great bear, but students may see a pot, ladle or baseball cap).





## The Sun Appears to Rise and Set

Based on The Sun Appears To Rise in the East and Set in the West by Susan Reynolds and Onondaga-Cortland-Madison Board of Cooperative Educational Services math, Science and Technology.

### Objectives and State of Maine Learning Results Performance Indicators:

1. Learners will be able to observe that the Sun appears to be in different places in the sky at different times of the day (Pre.K-2. Science and Technology. G. #1.)
2. Learners will be able to demonstrate that the above occurs because the Earth is rotating. (Pre.K-2. Science and Technology. G. #1.) (3-4. Science and Technology. G. #3.)
3. Learners will be able to use a model to represent the Sun rising (Pre. K-2. Science and Technology. L. #6.)

### The General Idea:

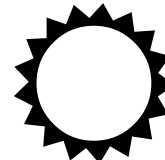
This activity is designed to disprove the geocentric idea that many young students have, the idea that the Sun must be going around us because of how it rises and sets. Through observations of the Sun (please make sure that all you students know that it is dangerous to look directly at the Sun!) and its path through the sky and through teacher demonstration, students will learn how day and night are the result of the Earth rotating rather than the Sun revolving.

### Getting Ready:

- Prepare journals for the students to record their observations in
- Set up a light for the demonstration, a bare bulb works well

### What You Need:

A journal for each student  
A lamp with a bare bulb



### What To Do:

1. Take the students outside at a set time (9am is good to start) and have them mark in their journals where the Sun is (again, warn students to **never** to look at the Sun because it will harm their eyes).
2. Repeat step one at least twice more (11 am and 2pm for instance).

### What To Discuss:

1. Was the Sun in the same place each time we looked at it?
2. Why or why not?
3. Did the Sun move or did the Earth move?

### What To Do:



1. Have the students stand in a circle around the lamp (while it is turned off).
2. Explain how scientists use models to discover how things happen and how you are going to use a model to discover how the Sun appeared to move in the sky.
3. Tell the students that they are the Earth and that the lamp is the Sun.
4. Have the students turn so that their left side is in the light
5. Tell the students to pretend that it is Sunrise.

6. While staying in the same spot, have the students turn ***slowly*** to their left until their backs are bathed in light.

What To Discuss:

1. Even though it's nighttime on their faces, is it nighttime on the students backs?
2. Did they all see how the "Sun" came up on one side of their face and went down on the other?

Continuations/Extensions:

1. Do the above activity with a globe. You may also want to mark your state with a bit of clay so that the students can watch as it goes from day to night.

## Vocabulary List

Axis	An imaginary straight line around which an object rotates.
Constellations	A grouping of stars, considered by humans to form a picture in the sky. Often related to mythology.
Day	The amount of time it takes for a planet to rotate once around its axis (for Earth, 24 hours). Also the time during those 24 hours that we can see the sun.
Earth	The third planet from the sun and the one we live on.
Gravity	The force of attraction between two objects which is influenced by the mass of two objects and the distance between the two objects.
Milky Way galaxy	large spiral galaxy consisting of several billion stars, one of which is the Sun.
Moon	The natural satellite orbiting Earth.
Moon Phases	The different shapes that the moon appears to take on over the course of a month.
Night	The time during the 24 hours of day that we cannot see the sun.
Orbit	A specific path followed by a planet, satellite, etc.
Planet	An object revolving around a star.
Sky	The expanse of space above the earth.
Space	The expanse between the planets, stars, and galaxies.
Solar System	All the objects, and the star they orbit around, in one system.
Sun	The star at the center of our solar system.
Star	a massive, self-luminous celestial body of gas that shines by radiation derived from its internal energy sources.
Universe	The vast expanse of space which contains all of the matter and energy in existence.



## The Universe At Your Fingertips

In addition to the lesson plans included in this teacher guide, we recommend the following activities from [The Universe at your Fingertips: An Astronomy Activity and Resource Notebook](#) published by the Astronomical Society of the Pacific. This very comprehensive compendium of astronomy activities is an excellent resource that is available from the Maynard F. Jordan Planetarium. State of Maine Learning Results performance indicators are listed for each activity.

State of Maine Learning Results Performance Indicators	
“Fingertips” Activity Title	Science and Technology Learning Results
Observing Where the Sun Sets (B-3)	Gr.Pre.K-2. G. #2., J. #1. & #3. & Gr.3-4. G. #3., J. #1., 2., 3. Also, Geography. Gr.Pre.K-2. A. #1.
Stories in the Stars (L-2)	Gr.Pre.k-2. G. #3., M. #1.
Teaching With Stories and Symbols (L-5)	Gr.Pre.K-2. G. #3., L. #6.

## Some good books to use with *Zubenelgenubi’s Magical Sky!*

### **The Day the Sun Disappeared**

Hamberger, John. 1964, W. W. Norton.

*The forest is filled with confused animals when the sun disappears in the middle of the afternoon.*

### **How Many Stars in the Sky?**

Hort, Lenny. 1997, Mulberry Books.

*One night Daddy and child seek a good place to count the stars in the night sky.*

### **I’ll See You When the Moon is Full**

Fowler, Susi Gregg. 1994, Greenwillow Books.

*Abe will miss his father when he takes a trip but knows he will be back when the crescent moon becomes full.*

### **Star Tales: North American Indian Stories About the Stars**

Mayo, Gretchen. 1987, Walker and Co.

*A collection of Indian legends about the stars, moon, and nighttime sky.*

### **The Zoo in the Sky: A Book of Animal Constellations.**

Mitton, Jacqueline. 1998, National Geographic Society.

### **The Big Dipper.**

Branley, Franklyn Mansfield. 1991, HarperCollins.

*Explains basic facts about the Big Dipper, including which stars make up the constellation.*

### **The Big Dipper and You**

Krupp, E. & R. 1989, Morrow.

*A delightful illustrated book on stars and constellations for ages 6 - 12.*

### **Day and Night**

Gordon, Maria. 1995, Thomson Learning.

## **Under the Sun**

Kandoian, Ellen. 1987, Dodd, Mead.

*Molly's mother answers her question about where the sun goes*

## **What makes day and night.**

Branley, Franklyn Mansfield. 1986, Harper & Row.

*A simple explanation of how the rotation of the earth causes night and day.*

## Some good web sites to use with *Zubenelgenubi's Magical Sky!*

### **[einstein.stcloudstate.edu/Dome/constellns/constlist.html](http://einstein.stcloudstate.edu/Dome/constellns/constlist.html)**

Find out the names of each constellation and the stories behind those names

### **[www.astro.wisc.edu/~dolan/constellations/constellations.html](http://www.astro.wisc.edu/~dolan/constellations/constellations.html)**

A constellation information page compiled by Chris Dolan at the University of Wisconsin-Madison Department of Astronomy

## Lessons From The World Wide Web

Also, a wide variety of lesson plans and activities can be found on the World Wide Web. These sites are dedicated to lesson planning in a variety of subjects.

### **[btc.montana.edu/ceres](http://btc.montana.edu/ceres)**

Maintained by the Burns Telecommunications Center, this page links to educational activities and classroom resources.

### **[www.bbc.co.uk/worldservice/science](http://www.bbc.co.uk/worldservice/science)**

The British Broadcasting Company's web site for science related material.

### **[spaceplace.jpl.nasa.gov/spacepl.htm](http://spaceplace.jpl.nasa.gov/spacepl.htm)**

This California Institute of Technology and NASA Jet Propulsion Laboratory site for kids offers information and activities .

### **[discoveryschool.com](http://discoveryschool.com)**

This Discovery Channel education site allows teachers to search for lesson plans by grade and subjects.

### **[askeric.org/cgi-bin/lessons.cgi/Science/Astronomy](http://askeric.org/cgi-bin/lessons.cgi/Science/Astronomy)**

Lesson plans based of the popular PBS series, Newton's Apple

### **[www.thegateway.org](http://www.thegateway.org)**

Sponsored by The U.S. Department of Education's National Library of Education and ERIC Clearinghouse on Information & Technology, this site offers lesson plans for all subjects and all grades.

## Astronomy Web Sites Worth a Visit

### **galaxymaine.com**

The Maynard F. Jordan Planetarium and Observatory home page.

### **space.jpl.nasa.gov**

NASA's Jet Propulsion Laboratory web site

### **emma.la.asu.edu/dsn\_solarsyst.html**

An astronomy information page compiled by Ken Edgett, Arizona State University

### **ssd.jpl.nasa.gov**

A site about our solar system maintained by the Solar System Dynamics Group of the Jet Propulsion Laboratory.

### **www.nineplanets.org**

A Multimedia Tour of the Solar System from the Students for the Exploration and Development of Space

### **www.clearsail.com/astronomy.htm**

Astronomy links from the ClearSail student fun and research site

### **hawastsoc.org**

The Hawaiian Astronomical Society's home page

### **www.calacademy.org/planetarium**

Alexander F. Morrison Planetarium home page

### **www.nss.org**

The National Space Society web site

### **stardate.org**

Learn what's going on TODAY in astronomy on the "Star Date" web page, maintained by the University of Texas' McDonald Observatory

*The Maynard F. Jordan Planetarium does not guarantee that the information given on the above web sites to be accurate, accessible, or appropriate for students.*

