

Volume 21.3
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Third Quarter

PSF NEWS

Planetary Studies Foundation

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ANTARCTIC ALUMNI GATHERING

NOVEMBER 12, 2011

1:00 p.m. to 3:00 p.m.

Calling all Antarctic explorers, tourists and those who have worked on the icy continent. This *chilling*, special event will be held in celebration of the 100th anniversary of reaching the South Pole.

See page 9 for more details.



Antarcticpictures.net

PSF AMENDS MISSION STATEMENT

At the 2011 Annual Member's Meeting, the PSF Board and members (both in-person and by proxy vote) voted to amend the Planetary Studies Foundation's mission statement. In a unanimous vote, it was decided to change the statement to add the following that has been underlined:

Our mission is to promote the study of planetary science and astronomy with emphasis on meteorites; and to sponsor, encourage and assist study in the physical, astronomical, environmental, and cultural sciences so as to broaden man's knowledge of all phases of the universe.

Our Vision is to be an internationally recognized body of knowledge and resource for the independent advancement of meteorite science and to be a nationally recognized community outreach resource for the improvement of public knowledge of the physical, environmental and cultural sciences.

To add "cultural sciences" was very important to everyone so as to include the growing success of the 1876 Banwarth House, and all the support we've received from our members and the surrounding community. This area of science has allowed us to grow our organization by 20%, as well as discover an additional scientific tool to help educate the public. Not only has the organizational growth been gratifying, but we are proud to have established ourselves as a significant scientific, cultural and historical presence in the northwestern area of Illinois.

For our members who have been with us for a long time and remember when the PSF was solely focused on planetary and meteoritic science, you may wonder what the cultural sciences have brought to the PSF to include it in our mission statement? Because of the acquisition of the 1876 Banwarth House we have been able to:

- Develop a headquarters for all PSF operations
- Receive the 2011 COL (IL) J.N. Pritzker, IL ARNG (Retired) Annual Renewable Grant
- Combine historical and scientific public offerings with the Apple River Fort
- Provide weekend tours, covering its 135 years of history
- Display PSF's numerous space, geological, environmental and historical artifacts in the Banwarth museum

Later in the issue, we'll provide a full summary of everything that was discussed at the 2011 Annual Member's Meeting. See page 5 for additional information.

PRESIDENT'S MESSAGE

Each August, your Planetary Studies Foundation holds its Annual Member's Meeting at our headquarters in Elizabeth, Illinois to review the past year, renew old friendships and to look toward the future. This year's attendance was exceptional with a record number of members present and a large proxy vote. In short, PSF had a record increase in membership, is in the "black" and is operating within its budget. Our local and international reputation continues to grow through our participation in community events and our research presentations at scientific conferences. 2010 was also a very good year for the PSF based on the number of educational programs presented and the number of people in attendance. Our *1876 Banwarth House & Museum* continues to serve as the focal point of the organization's community-related activities, with our astronomical observing sessions being held next to us at the Apple River Fort Historic Site. Concerning our outreach programs, the Starlab portable planetarium continues to lead the way in both the number and variety of participating students. Our 20 year-old Starlab was seen at schools, community events, and various professional institutions. In addition, our Meteorite Education Outreach Program with the Field Museum in Chicago, Illinois continues to flourish with hundreds of "meteor-wrongs" being identified each year. One of our big moments came in April 2010 when a large fireball fell over southwestern Wisconsin and PSF responded by sending out search teams to collect data and possibly find some meteorites. A great deal of time and effort was spent looking for meteorites and we came up empty handed having to rely on the generosity of others to provide material for research. As it turned out, the meteorites were scattered over a very large area and the competition from collectors and meteorite dealers was intense. As it turned out, luck seemed to play the most important role in finding a specimen of the Mifflin meteorite.

I would like to take this opportunity to give special thanks to our devoted members **Catherine A. Rudolph** and **Jennifer Schwartz** for taking advantage of their respective employer matching grants program. In this period of difficult economic times employer-employee matching grants are becoming very scarce. PSF would like to thank and congratulate Cathy Rudolph's employer **ArcelorMittal** and Jennifer Schwartz's employer, **Yahoo!**, for their generous contributions to their employee's charitable interests. I would like to encourage our other members to follow Cathy and Jennifer's lead and look for similar programs with your respective employers.

Looking ahead to 2012, your Executive Board presented a balanced budget that will support all of our current activities at a slightly lower amount (\$70,000) than the allocated (\$75,000) for 2011. Income projections for 2012 reflect a slight decline from the previous year and we will compensate by "tightening our belt" just a little more and making sure each dollar is spent wisely. In an effort to increase attendance at the *1876 Banwarth House & Museum*, the PSF Executive Board approved a special project to construct a metal staircase that will connect the lower parking lot at the Apple River Fort Interpretative Center, to the city street in front of our building. It was noticed by several of our board members that potential visitors in the lower parking lot wanted to come to the museum but were put-off by the fact that they had to ascend a steep slope. Even with encouragement from our lovely costumed staff on the veranda, the climb was too great for most and they left. A strong, safe, and attractive staircase will remedy this and we should see a dramatic increase in attendance next year. Last year's "Annual Fund Campaign" to raise sufficient funds to build an astronomical observatory next to the Apple River Fort Historic Site is moving forward. The Apple River Fort Historic Site raised over \$7,000 towards this goal. The good news is that the PSF has just received an additional donation to move the project to the next level. An old friend, the **Willow Springs Foundation** of Mt. Carroll, Illinois, has awarded the PSF a \$10,000 grant toward the construction of our observatory. With this contribution, we can now move forward and develop architectural plans for the building. What is perhaps most gratifying about this particular grant is the fact that the **Willow Springs Foundation** has been monitoring our efforts here in northwestern Illinois and is very pleased with all our activities. With this in mind, 2012 should be an excellent year for the PSF and I look forward to reporting to you on our 2011 success next August.

Paul P. Sipiera

DONOR'S SPOTLIGHT

\$5,000—\$10,000

Willow Springs Foundation

A special donation toward the construction of the PSF Astronomical Observatory

\$1,000—\$4,999

Anonymous

COL(IL) J.N. Pritzker, IL ARNG (Retired)

Audrey & Albert Ratner

\$25—\$100

Sophie & Jim Abemante

James Hagan

IN-KIND

A very special thank you to the **Galena State Bank's Elizabeth Banking Center** for their generous donation of decking lumber valued at over \$2,500. In particular, we would to thank **Dave Winter, Drew Townsend** and **Nelson P. Klavitter** for their timely response to our request for this donation. This building material will be used for various on-going construction projects at the *1876 Banwarth House*. A donation such as this, combined with the volunteer hours and construction skill of **Randy Shaw**, help us to maintain the beautiful appearance of the museum.

WELCOME NEW MEMBERS

Individual Memberships

Lucille Auen

Jerome Clair

Mary Damasco

Victoria Franz

John Pokoruik

Frank Randall

Family Memberships

Jeffery, Judy & Philip Glenn

RENEWING MEMBERS

Individual Memberships

Deborah E. Pausz

Karen Sabatini

Renewing Supporting

Dave & Debra Kahn

MEMBER'S CORNER

CONGRATULATIONS:

To **Alaina Sisler & Andrew Klippert** on their September 10th wedding in Elizabeth, Illinois. The beautiful church ceremony was followed by a wonderful reception held at the Chestnut Mountain Resort overlooking the Mississippi River.

To **Jill Kathryn Lauerman**, daughter of PSF Executive Board Member and Founder **David Lauerman**, on her recent engagement to **Richard Coe Berrill, Jr.** The happy couple will be wed on November 19th in Barrington, Illinois.

To **Walt Cunningham**, Apollo 7 astronaut, on his Hall of Fame Induction to the *San Diego Air & Space Museum* to be held at the museum in San Diego on November 5th. Walt joins the museum's 2011 Class of accomplished and distinguished aviators.

PSFs NEW GRANDPARENTS:

Jim Hagen and his wife on the birth of a baby girl to their daughter. The entire family is doing fine!

Martha & Max Purchis on the July birth of their grandson, Miles James.

Kim & Ken Thorson, on the birth of their first grandson to Kyle Thorson and his wife.

SUMMER PHOTOS

FROM THE 1876 BANWARTH HOUSE



AT-A-GLANCE: 2011 MEMBER'S MEETING

The 2011 Annual Member's Meeting was a huge success! The meeting was well attended by local members from the Jo Daviess County, as well as members from all over the Chicagoland area who drove in specially for the occasion.

For those members who could not attend, either due to distance or previous commitments, we deeply appreciate the 30+ proxy votes that were sent in via email. What may seem like a small gesture, taking the time to read through the issues and vote accordingly, means so much. On behalf of Paul P. Sipiera, the PSF Board and the PSF staff, we can't say it enough, THANK YOU!

First and foremost, we would like to announce the re-election of board members, Paul P. Sipiera and Dan Tindell. They are a huge asset to the board and to the entire organization. The next exciting announcement is the new addition of Jim Hagan to the PSF Board!

Jim is a professor at Saint Xavier University in Chicago. He has an interest of the study of extremophiles and the search for evidence of microbes in space. Currently, Jim is the North American Director for The International Emergency Management Society (TIEMS) and does extensive work in Disaster Management internationally.

For many years, he has used his passion and knowledge of meteorites to visit local schools to talk about geology and the field of meteoritics. His extensive collection of terrestrial and non-terrestrial samples is used to excite students about science. Welcome Jim!

We strongly encourage our everyone to attend the member's meeting next year, if at all possible. Not only does this allow you to hear directly from the president and the board, but it allows them to hear directly from you. To summarize the meeting on August 20, 2011, we'll discuss some of the larger topics.

From August 2010 to August 2011,

the PSF has been proud to accomplish the majority of items we set out to achieve. The PSF has thrived in its headquarters in Elizabeth, IL. We were able to complete an official office for PSF staff through the donations of members and volunteers throughout the community. In late 2010, we applied for a grant through the Tawani Foundation. This annual renewal grant not only has supported the PSF through some of the toughest economical times the U.S. has ever seen, but allowed us the opportunity to expand our outreach and touch the minds of students all across the state of Illinois.

As many of you know, the PSF combined it's beloved meteorite collection of 2300+ specimens, with the Field Museum's existing collection in 2009. With our collection at the Field Museum, it has allowed us to maintain the specimens in a more desirable location, as well as provide the resources to take our research to heightened levels. This partnership initiated the Robert A. Pritzker Center for Meteoritics and Polar Studies at the Field Museum. We're pleased to announce that since the partnership was created two years ago, the combined collection of 2700+ specimens is now the largest, non-government collection in the world!

The PSF has continued to focus on community education and community outreach. PSF Director and Board Member, Jennifer Schwartz, attended the 2010 and 2011 NASA Jet Propulsion Laboratory Annual Open House in Pasadena, CA on behalf of the PSF. With an attendance of over 10,000 people, having her represent the organization is invaluable.

Starlab was also incredibly successful in 2010 and 2011. Between January and May, the PSF presented eight, multi-session school programs. From 1993 to 2011, 45,000 people have viewed PSF's Starlab Heavens! This educational tool teaches people of all ages about the

nighttime sky, constellations and the entertaining, mythological stories that were created hundreds of years ago to explain the wonders above.

Another important topic that was discussed at the meeting was PSF's growing membership. Within the past two years, our membership has grown by over 45 members. This type of growth is huge for the PSF. Not only are we able to gain a small revenue from membership dues when we grow the PSF family, but we also gain power and support for our cause!

One suggestion we always recommend to our members, make sure to tell people about the foundation. When you're passionate about what you support, that passion easily inspires others to share in that enthusiasm. You might be surprised how many people have a hobby in the sciences and how many people love the mysterious and beautiful skies above!

As the end of the year approaches, we will also begin our annual End of the Year Campaign. This year's campaign was voted by the board for the construction of a staircase connecting the Banwarth House with the below city parking lot. This is the perfect opportunity to donate to a special cause and you may even want to ask your company if they'll match your donation. We're also looking for volunteers to help with this campaign. If you're interested and looking for an outlet to really make a difference, send us an email and we can discuss different ways you can help that fit your lifestyle.

The full presentation that was handed out at the meeting is available in PDF. Please contact Andrea Cosentino if you would like to receive a copy. We're looking forward to another successful year!♦

MEMBER SPOTLIGHT: Patricia Tierney

The Planetary Studies Foundation met Patricia Tierney when its headquarters moved to Elizabeth, Illinois. Patricia has been involved with helping to market the PSF to visitors of Jo Daviess County, as well as serving on the judging panel for the annual Daffodil Queen competition. It has been of great pleasure to add such a warm and welcoming asset to the PSF family.



Patricia Tierney

Planetary Studies Foundation (PSF): Where did you grow up and how did you meet your husband?

Patricia: I was born in a small town named Davenport, Washington and lived there with my family, including two older brothers. Being the only daughter and the baby of the family, I was “Daddy’s Little Girl” and my Mom’s “Shirley Temple”.

A few years later, we moved to an even smaller town named Edwall, Washington. It was in the middle of wheat country. How small is small? My Grandfather owned the butcher shop, my Mother was the telephone operator, my Uncle was the Postmaster, and my Dad operated Hutton’s Machine Shop. My Aunt was a school teacher and I had her as a teacher for several grades. My Dad and his two brothers operated and had patented a device that made it possible for the Combines to harvest the steep and rolling hills of wheat.

Due to the welding that my Dad had done for years, his eyes were being damaged so we moved to a bigger town of Cheney, home of then, Washington State College. My family opened Hutton’s Meat Market and Grocery Store and my Dad became an excellent butcher.

While attending school, I met my future husband, Jim. We were high school sweethearts and upon graduating, he started attending college and we were soon married.

PSF: What professions have you worked in?

Patricia: I was employed at Pacific NW Telephone Company straight out of high school while my husband received his Bachelor’s Degree and I received my PHT (Putting Husband Through) Degree. Many years later, I went to work at United Airlines. I started as a statistical clerk and in 1980, I was promoted to a managerial position in System Operations Control (SOC) as a System Aircraft Router.

I was the third female to be hired as a Router. This SOC is the operations-hub of the airlines and it never closes. I worked days, afternoons and night shifts, rotating shifts weekly and rotating days off. Because of the changing schedule, the personal pocket calendar became imperative to always have with you. Coffee and cigarettes held us together and we never missed a shift!

I don’t miss that schedule, but have sincere respect knowing what the people are going through when bad weather hits the Chicago area and I hear about hundreds of flights being cancelled. But I did love the job of routing the 747’s, DC10’s, and 777’s. To our customers, they expected an aircraft ready at the gate for their flight and that’s what a Router does, and also plans aircraft for nightly maintenance. I retired with 28 years of service.

After retiring, my husband and I moved full-time to “our place in the country”

just south of Elizabeth. Our adult children are located in Georgia, Florida, California and the suburbs of Chicago. We also have two beautiful granddaughters.

PSF: What are some of your hobbies?

Patricia: Gardening is one of my favorite hobbies, specializing in Hostas. I also belong to the Dubuque Hosta Society.

PSF: Where is your favorite place you have traveled?

Patricia: My favorite place is the Hawaiian island of Maui.

PSF: What is your favorite area of science?

Patricia: I have always been interested in astronomy, even as a child. My book reports were always about the planets. For some reason, the planet Pluto was my favorite. It was so small and so far away.

In 2015, the spacecraft, New Horizons (launched in 2006) will approach Pluto. I can’t wait to finally see it up close. I also followed all our space programs beginning with Mercury, Gemini and

ending with Apollo. Some of my favorite movies are *The Right Stuff* and *Apollo 13*.

PSF: How did you become involved with the Planetary Studies Foundation?

Patricia: When the PSF came to Elizabeth, I started seeing in the newspapers a weekly activity schedule. We attended one of the Solar Observing and Skywatch events, met Diane & Paul and joined. I appreciate that the PSF is making an area-wide difference here with a variety of creative programs and members having continuous educational events to attend.

PSF: You have been involved with the foundation for the last couple of years, what are some things you are involved with?

Patricia: I am very fortunate to have the PSF headquartered locally. As a board member of the Elizabeth Historical Society, we work closely with Diane, Paul, and other Elizabeth businesses to plan how we can attract some of the one million annual visitors that come to the northwest area of Illinois.

At the August members meeting, there was a lot of discussion about having an observatory built on the land the PSF owns near the Apple River Fort. I find this particularly interesting and I look forward to being involved in getting the observatory built.

PSF: What advice would you give to our younger readers and science enthusiasts?

Patricia: The best advice I can give is to get involved! Try to attend the PSF Solar Astronomy lessons, science lectures and anything else that you may be interested in. Do your homework, ask questions and read, read, READ!♦

**THE PSF BOARD WOULD LIKE TO THANK
THOSE WHO ATTENDED
THE ANNUAL MEMBER'S MEETING
AND WHO SENT IN PROXY VOTES!**

Leo Baran
Mike Caplan
Michael Clifton
Cecilia Cooper
Andrea Cosentino
Carol Dehnbostel
Bruce Dod
Bonnie Garrity
Lenora & Trinity Griffin
William Hack
Jim Hagen
Christina Hollis
Trevor Ireland
Helen Kilgore
Janet Landato
Richard Leary
Carleton Moore
James Paglin
Deborah Pausz
Richard Persons
Martha Purchis
Audrey Ratner
Blaine Reed
Jennifer Robbins
Catherine Rudolph
Joan Reylek
Larry Reylek
Robert Renguso
Warren Sansourcie
Bill Schooley
Jennifer Schwartz
Kim Thorsen
Pat Tierney
Dan & Pam Tindell
Linda Virag
Monica Von Glahn
Herbert Windolf
Conrad Wragg
Chris Zirtzman

UPCOMING EVENTS & LECTURES

Solar Observing by Chris Zirtzman

Saturday, October 15th

1:00 p.m. to 3:00 p.m.

Please join Chris Zirtzman, PSF member and amateur astronomer, as he introduces you to solar observing. Chris will teach the audience which telescope filters are to be used and what to look for when using a telescope in the daylight. Chris also has years of experience with telescopes. If you have a telescope, but are not sure how to properly use it, please feel free to bring it along and he will provide a full tutorial of your personal telescope. The event will take place at the Banwarth House parking area. The event is FREE for PSF members and a \$3 donation for non-members.

Victorian Bonnet Making by Jolene Foat

Saturday, October 22nd and 29th

10:00 a.m. to 2:00 p.m.

This event is a hands-on workshop in which you will have the opportunity to make a true Victorian hard bonnet. Your guide into the millinery world of hat making is PSF member and 19th century interpreter, Jolene Foat. This two-day event will begin at 10 a.m. continuing until 2:30 pm and will pick up again the following Saturday.

The workshop fee is \$25 for PSF members and \$35 for non-members. This fee will cover fabric, feathers, ribbon, form and thread. If you plan to attend, please bring a sack lunch for both days. This workshop will be held at the Banwarth House.

If you would like to reserve a spot, please contact Diane Sipiera at (815) 858-2014 or dsipiera@planets.org before October 20th. We look forward to seeing you there!



Make a bonnet
like this!

Get “Hooked” on Crocheting by Diane Sipiera & Jolene Foat

Saturday, November 5th

10:00 a.m. to 2:00 p.m.

This is the perfect opportunity to finally learn how to crochet. As the cold weather looms closer, it becomes necessary to put your summer hobbies away and begin to savor the warmth of the indoor season. This beginner’s class will teach you the basic loops and chain stitches so that you can make a simple scarf or a blanket. This hands-on workshop will require you to bring a crochet hook and two skeins of yarn. These skeins do not need to be new since you are learning the basic crocheting techniques.

The cost for attending this lecture is FREE for PSF members and a \$5 donation for non-members. If you plan to attend, please bring a sack lunch. This workshop will be held at the Banwarth House. If you would like to reserve a spot, please contact Diane Sipiera at (815) 858-2014 or dsipiera@planets.org. We look forward to seeing you there!

Antarctic Alumni Social Gathering

Saturday, November 12th

1:00 p.m. to 3:00 p.m.

Calling all Antarctic explorers, tourists and those who have worked on the icy continent! This *chilling*, special event will be held in celebration of the 100th anniversary of reaching the South Pole. The Planetary Studies Foundation would like to extend a one-of-a-kind invitation to all PSF members who have visited Antarctica. Share your stories, photos and incredible memories at an afternoon gathering in Elizabeth, IL. If you have any questions or would like to RSVP, please contact Diane Sipiera at (815) 858-2014 or email her at dsipiera@planets.org.

Historical Holidays: A Victorian Christmas

November 26th

1:00 p.m. to 3:00 p.m.

Before the hustle and bustle of the holiday season takes effect, come and learn some new traditions that once took place during the bygone era. What were the customs of a typical Victorian family? What was used to dress the Christmas tree each year? Find out the answers to these questions and other interesting things from this time period. This program will be from 1:00 p.m. to 2:30 p.m. held in the *1876 Banwarth House & Museum*. The cost for attending this lecture is FREE for PSF Members and a \$3 donation for non-members.

Winter Constellations & Celestial Events

December 10th

1:00 p.m. to 2:00 p.m.

The best time for viewing constellations truly are the winter months. Cold, crisp and clear nighttime skies are brilliant during the winter season. This slide presentation will introduce you to Orion the “Great Hunter”, Taurus the “Bull” and spectacular Pleiades.

Dr. Paul Sipiera, planetary geologist and president of the PSF, will share his knowledge of the universe and solar system. This lecture will help all levels of astronomy enthusiasts navigate and appreciate the beauty of the winter sky.

This program will take place from 1:00 p.m. to 2:00 p.m. and will be held in the *1876 Banwarth House & Museum*. The cost for attending this lecture is FREE for PSF members and a \$3 donation for non-members.



Orion the
“Great Hunter”

Would you like to volunteer a special skill or talent for one of PSF lectures? It doesn't matter whether you're located in Illinois or somewhere else in the United States, contact us and we would be more than happy to put together an event for you at a local library or community center. The goal is to teach fellow PSF members and the surrounding community! Contact Andrea Cosentino to sign up.

FALL CELESTIAL EVENTS

October 16

Comet Elinin

Newly discovered comet, Elinin, will make its closest approach to the Earth on October 16th. The comet was discovered on December 10, 2010 by Russian amateur astronomer Leonid Elenin. It is estimated that the comet will reach 6th magnitude as it makes its closest approach. This will make it just barely visible to the naked eye. With a good pair of binoculars and a little determination, you may be able to get a good look at this new comet.

October 21, 22

Orionids Meteor Shower

The Orionids is an average shower producing about 20 meteors per hour at their peak. Best viewing will be to the east after midnight.

October 29

Jupiter at Opposition

The giant planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. This is the best time to view and photograph Jupiter and its moons. The giant planet will be as big and bright as it gets in the night sky. A medium-sized telescope should be able to show you some of the details in Jupiter's cloud bands. A good pair of binoculars should also allow you to see Jupiter's four largest moons, appearing as bright dots on either side of the planet.

November 8

Asteroid 2005 YU55 Flyby

An asteroid known as 2005 YU55 will make a close approach to the Earth. The large space rock, about 1,300 feet in diameter, will pass closer than the Moon at 0.85 lunar distances. While it not expected to pose a threat to the Earth, this extremely rare event presents a unique opportunity for amateur astronomers to observe the asteroid as it makes its closest approach to our planet. Asteroids this large only pass close to the Earth about every 30 years.

November 10

Full Moon

The Moon will be directly opposite the Earth from the Sun and will be fully illuminated as seen from Earth. *Did you know?* This full moon was known by early Native American tribes as the "Full Beaver Moon" because this was the time of year to set the beaver traps before the swamps and rivers froze.

November 17, 18

Leonids Meteor Shower

The Leonids is one of the better meteor showers to observe, producing an average of 40 meteors per hour at their peak. The shower usually peaks on November 17th & 18th, but you may see some meteors from November 13th - 20th. Look for the shower radiating from the constellation Leo after midnight.

November 25

Partial Solar Eclipse

This partial eclipse will only be visible over Antarctica and parts of South Africa and Tasmania.

December 10

Full Moon

The Moon will be directly opposite the Earth from the Sun and will be fully illuminated as seen from Earth. *Did you know?* This full moon was known by early Native American tribes as the Full Cold Moon because this is the time of year when the cold winter air settles in and the nights become long and dark.

December 10

Total Lunar Eclipse

This eclipse will be visible through parts of North America, the Pacific Ocean, Australia, Asia, eastern Africa and throughout most of Europe.

T H T F A R C E C A P S P E L F A I R S
 O R B I T S R T S P M E M I E V R E S O
 N T O D S P S A E A R I G O O T I Q H R
 S S F I R A U O T I T H L N O R O U E E
 R O T O E C N E G S T E R K U N B I C D
 A L E R M E O E P Y Y E L A Y B O N A G
 S A C E O S E N E O P R T L L W N O P I
 L R L T N H T A S U C N A E I S A X S A
 U W I S O U R R S T E S F N O T M Y P N
 P I P A R T A H E C E R E L I M E A E T
 O N S P T T O N A G A L A L W B T U E G
 A D E O S L A M A W S R L Y E S E R D A
 L R D G A E I L D R S A E A T T O O N L
 U E I E E X A E A Y I L N L T I R R C I
 B T T E O X T S S I R A L O P I V A E L
 E A A R I I A T M O S P H E R E O A S E
 N R P E H U E L O H K C A L B O K N R O
 R C S W Q M M U N I V E R S E S C T A G
 A N D R O M E D A G A L A X Y R O N P G

Find and circle all of the astronomy-related words that are hidden in the grid. The remaining letters spell a secret message.

- | | | | |
|---------------|-------------|-----------|------------|
| Andromeda | Deep | Moon | Solar |
| Galaxy | Space | Nebula | System |
| Apogee | Eclipse | Orbit | Solar Wind |
| Asteroid | Equinox | Parsec | Space |
| Astronomer | Galaxies | Perigee | Shuttle |
| Atmosphere | Galileo | Polaris | Spacecraft |
| Aurora | Gravity | Proxima | Stars |
| Binary Star | Hubble | Centauri | Sun |
| Black Hole | Kepler | Pulsars | Supernova |
| Constellation | Light | Quasars | Telescope |
| Corona | Year | Red Giant | Tides |
| Crater | Meteor | Satellite | Universe |
| Milky Way | White Dwarf | | |

TEST YOUR SPACE TRIVIA

Approximately, how old is the universe?

In a study published in the journal Science, a team of researchers estimate the universe is between 11.2B and 20B years old.

What is a black hole?

A black hole is a region of space-time from which nothing can escape, even light.

What is a quasar?

The scientific consensus is that quasars are powered by material falling into super massive black holes in the nuclei of distant galaxies.

What is a supernova?

A supernova is a stellar explosion which produces an extremely bright object made of plasma that declines to invisibility over weeks or months.

How hot is the Sun?

The core of the Sun is 27,000,000 degrees Fahrenheit. The surface of the Sun is only 10,000 degrees Fahrenheit.

What is a solar flare?

A solar flare is an explosion on the Sun that happens when energy stored in twisted magnetic fields is suddenly released.

What is the most common element found in the universe?

Hydrogen

How many moons does Jupiter have?

Jupiter has 63 known satellites, as of February 2004.

What is the cause of the Great Red Spot on Jupiter?

The Great Red Spot is a hurricane-like storm system. It is large enough that two Earths could fit inside it.

How many stars make up the "Big Dipper"?

The "Big Dipper" is a group of seven bright stars, three of which form the handle and four of which form the bowl.

How many constellations are there?

There are 88 constellations.

Membership Form

Regular Membership	___ \$	20.00	1 year	or ___ \$	35.00	for 2 years
Family Membership	___ \$	35.00	1 year	or ___ \$	60.00	for 2 years
Sponsoring Membership	___ \$	50.00	1 year	or ___ \$	90.00	for 2 years
Contributing Membership	___ \$	100.00	1 year	or ___ \$	180.00	for 2 years
Student Membership	___ \$	10.00	1 year			
Life Membership	___ \$	500.00				
Please accept this donation	___ \$	_____				

Please fill out the form completely and return it to:

Name: _____

Address: _____

City: _____

State: _____ Zip Code: _____

Email: _____

Phone: _____

Please make checks payable to

Planetary Studies Foundation

Please mail the membership form
along with a check to the address
below.

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