

Casper Planetarium (307) 577-0310



Eyes to the Sky!

R. Kennedy

Some astronomical events occur with precise regularity. The annual Perseids meteor shower is an example. Some events are more rare, such as a total solar eclipse. However, some astronomical events are so rare they only occur once every hundred years. These once in a lifetime events naturally get a great deal of publicity and generate a lot of excitement. Such an event is coming in June 2012, namely the Transit of Venus.

When the moon passes in front of the sun it is called an eclipse. When one of the inner planets (Mercury or Venus) passes in front of the sun it is called a transit. On June 6, 2012, the planet Venus will pass across the disc of the sun. This event will not be seen again in our lifetimes, because the next transit will occur in the year 2117.

Why is such an event so rare? Several geometries come into play when talking about transits. First, Venus is very far away from Earth (38 million kilometers at its closest). This means that Venus appears very small in the sky. Second, the orbit of Venus is tilted or inclined slightly, about 3.4 degrees. This means

that Venus usually appears above or below the disc of the sun as seen from Earth. Only when both planets are in correct alignment does Venus pass directly in front of the sun.

How does one observe the Transit of Venus? First and foremost, do NOT look directly at the sun with ANY kind of unfiltered instrument. Only a telescope with an approved solar filter is suitable for observing the transit. Second, keep in mind the time frame that transit will be visible. First contact (the time when Venus first appears to touch the sun's limb) occurs at 16:03:54 MDT (4:03 PM) and ends at 22:51:11 MDT (10:51 PM). The entire transit will take approximately seven hours. However, the sun will have set below our horizon long before the transit is complete.

Does this mean that the transit is not worth having a look at? Of course not. Check around your community and see if there are observing sessions happening in conjunction with the transit. Astronomy clubs love sharing what they know about astronomy. Just remember that if you miss your chance you won't have another until 2117.

NCSA Science Fair

M. Wistisen

It is once again Science Fair Season. Students around the district are planning, testing, gathering data, and putting all those reading and writing skills to good use.

The District Science Fair (grades 4-5) will run concurrently with the Junior Science Fair (grades 6-8) on February 4, 2012. Students competing in the Junior division may qualify to attend the Wyoming State Science Fair in March.

Students, parents, and teachers that would like more information about conducting a science fair project should visit our website at http://www.natronaschools.org/department_documents.php?id+155

Students will be judged in the morning and projects will be open for viewing from 2:00 until 2:30 after the awards ceremony.

Good luck to everyone!

In This Issue:

- Eyes to the Sky! (1)
- NCSA Science Fair (1)
- Miss Conception Article (2)
- Summer Camps (2)
- Spring Schedule (3)
- Mission of the Vega (4)
- Sun-Earth Day (4)

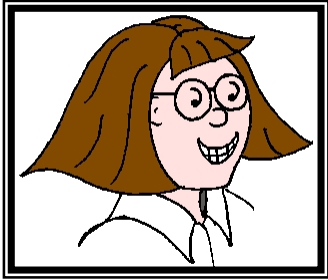
SUN-EARTH DAY:
2012

TRANSIT
OF
VENUS

Celebrate
with the
Casper
Planetarium!

June 6, 2012
5:00 - 7:00

See page 4



Miss Conception

If you have an astronomy question for Miss Conception, please send it to:

CasperPlanetarium@gmail.com

Venus:

Dear Miss Conception,

Venus has clouds and is closer to the Sun than the Earth. It formed at the same time from the same molecular cloud as the Earth, and so was bombarded by the same comets that brought water to Earth. Does that mean that the environment on Venus is tropical?

~Pondering Paradise

Dear Pondering,

The atmosphere of Venus was first discovered in 1761, during a Venusian transit of the Sun. The atmosphere is nearly opaque, but not entirely, and so a haze was observed surrounding the planet. The presence of an atmosphere, coupled with Venus's proximity to the Sun, made scientists initially think that Venus might have jungles or swamps. This was found to be a misconception. Venus's atmosphere is much thicker than Earth's, and it's composed mostly of carbon dioxide. Carbon dioxide is a greenhouse gas, which means it traps heat. As a result, the temperature near

the surface of Venus has climbed to nearly 900°F, far too hot to support liquid water or life.

Although rain evaporates before reaching the ground due to the extremely high temperature, there is precipitation in the upper atmosphere of Venus. However, the water vapor content is very low, and so on Venus it rains sulfuric acid. It's true that at one time Venus probably had as much water as the Earth, but unlike Earth, it doesn't have a magnetosphere. A magnetosphere is essentially a magnetic shield that surrounds a planet. Rotating ferrous metals (found in the core of planets) are required to generate a magnetic field, and because Venus rotates very slowly, its magnetic field is very weak. As a result, it's been exposed to the solar wind (ions emitted by the Sun), which have stripped away most of the lighter molecules, such as hydrogen and oxygen, which are required to form water. The extremely high temperature and lack of water is not characteristic of a tropical environment, nor is it conducive for any form of life, and an ecosystem of any kind would not be sustainable.

Summer Astronomy Camps

Already thinking ahead to next summer? Register your child today for summer astronomy camp! The Casper Planetarium offers camps for children from ages four to twelve and up. Space in each camp is limited. Call for more information!

Astro-Tots

4- and 5-year-olds
June 18 - 22, 2012
1:00 PM - 2:00 PM
\$30.00

Practical Astronomy

10- and 11-year-olds
June 11 - 15, 2012
1:00 PM - 3:00 PM
\$40.00

Oh, Mr. Sun!

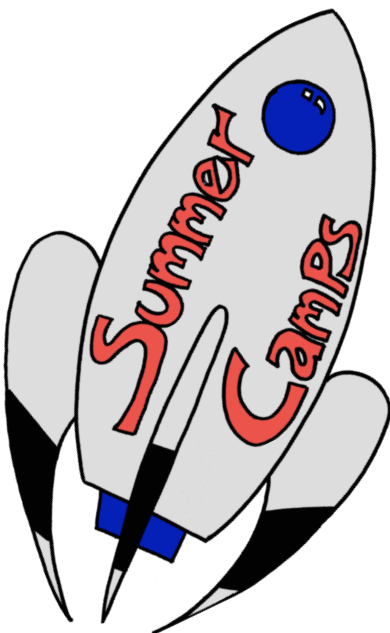
6- and 7-year-olds
June 25 - 29, 2012
1:00 PM - 2:00 PM
\$30.00

3D Modeling with Blender

12 years and up
May 29 - June 1, 2012
1:00 PM - 4:00 PM
\$40.00

3, 2, 1, Blastoff!

8- and 9-year-olds
June 4 - 8, 2012
1:00 PM - 2:30 PM



What's Happening this Spring at the Planetarium?

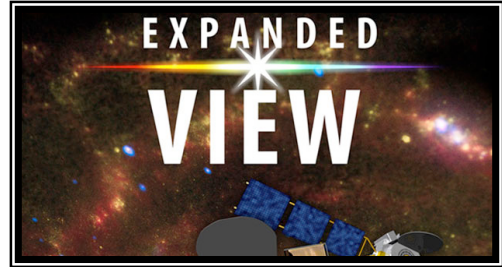
Public Programs

The Night Sky: Enjoy a 10 minute tour of the prominent constellations, stars, and planets led by a Planetarium staff member before each show.

Expanded View

Saturday Evenings at 7:00pm
 January 7 - May 31, \$2.50/person
 Recommended for ages 8+

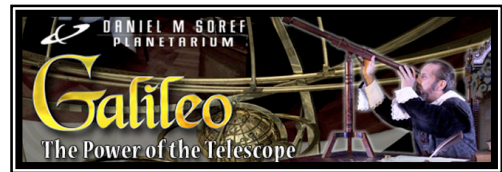
This program presents images of some of the most beautiful deep space objects as seen through the eyes of the Hubble, Spitzer, and Chandra space telescopes.



Galileo: The Power of the Telescope

Saturday Evenings at 8:00pm,
 January 7 - May 31, \$2.50/person
 Recommended for ages 6+

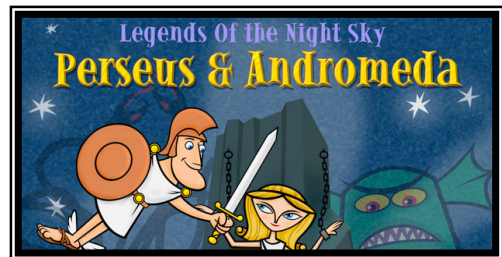
Two eyes and two pieces of glass revolutionized human understanding 400 years ago. The eyes belonged to Galileo Galilei, and the curved pieces of glass were the lenses of his telescope. Learn Galileo's personal and powerful story, and explore how his discoveries displaced long-held views about the universe.



Legends of the Night Sky: Perseus and Andromeda

Tuesdays, Wednesdays, and Thursdays at 4:00pm,
 January 10 - May , \$2.50/person
 Recommended for ages 6+

Hear the Greek mythology surrounding several well-known constellations: Perseus, Andromeda, Cepheus, Cassiopeia, Cetus, and more. Can the demigod, Perseus, save the princess, Andromeda, in time?



Spring Break Special Show

Fun and Educational

Zula Patrol: Down to Earth

Tuesday, Wednesday, and Thursday, 11:00am
 March 5 - 9 Only, \$2.50/person
 Recommended for ages 4+



While on a routine fossil-hunting expedition, The Zula Patrol turns up evidence that the villainous Deliria Delight has been travelling back in time to Earth's prehistoric past to illegally dump her company's toxic trash. The Zula Patrollers must find and catch her, before her actions cause catastrophic consequences.

Visit the gift shop at
the Casper
Planetarium for
science toys and
gadgets!

Our office is open
Monday through Friday
from 9:00 AM
until 5:00 PM



**CASPER
PLANETARIUM**

Phone:
(307) 577-0310

E-Mail:
CasperPlanetarium@gmail.com

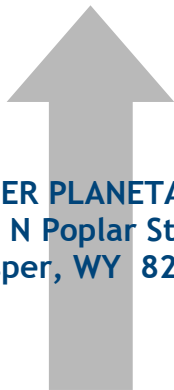
We're on the Web!

See us at:

www.natronaschools.org

under the "schools" tab

CASPER PLANETARIUM
904 N Poplar Street
Casper, WY 82601



Stage III Presents: Mission of the Vega S. Aagard

Starting February 23 the diplomats of the Free United States of Europe and America are going to Venus in *The Mission of the Vega*. They will be the first people to take part in a round trip journey to the 2nd planet, and all for the sake of diplomats. While there they will meet with all the heads of the Venusian government, and discuss their role in the war with Russia.

No one knows what the planet's inhabitants are like - only that The Free United States of Europe and America as well as Russia have sent their criminals there for years in order to remove them from the Earth. Those criminals could give an advantage in the war. There are many questions as to how the trip might go, and as of now none of them can be answered. However, one rumor can be put down for good:

the Vega is a strictly diplomatic mission. Our president has stated time and time again that there is no truth to the assumptions that the mission may be also for military purposes. The Vega is a passenger ship and all military personnel that may be on board are only for security and protection.

This performance of the radio play *The Mission of the Vega*, by Freidrich Durrenmatt, will be put on by Stage III in conjunction with the Casper Planetarium. Voices and acting are provided by Stage III, backdrops and settings are created by the Casper Planetarium. Showtimes are Thursday, February 23, through Saturday, February 25, at 6:00p.m. and on Sunday, February 26, at 1:00p.m. at the Casper Planetarium.

Sun-Earth Day: Shadows of the Sun S. Kattner

This year's Sun-Earth Day celebration will occur on June 6th. There are many exciting celestial events happening in 2012; the two biggest events being the transit of Venus on June 5-6 and the total solar eclipse on November 13-14. For this reason, NASA has chosen the theme "Shadows of the Sun" for the 2012 Sun-Earth Day celebration in order to help people better understand and explore the nature of eclipses and transits.

Sun-Earth Day has typically been celebrated around the time of the spring equinox in March, when the Earth has equal time of night and day. But, with the transit of Venus occurring in the beginning of June, NASA has decided to combine the two celestial celebrations into one, sure to be fun-filled, event.

The first Sun-Earth Day celebration took place in 2000 with the idea of promoting the knowledge of how the Sun influences our everyday lives here on Earth. Over the past eleven years NASA has celebrated the Sun-Earth connection with free educational activities and programs. This year will be the second year the Casper Planetarium will hold a free event for Sun-Earth Day. So spread the word and come to the planetarium from 5:00-7:00 pm on June 6th for some Sun-Earth activities and to view the transit of Venus. We will have telescopes with special solar filters out on our lawn and special solar viewing glasses in order to view the transit, given clear skies, as well as multiple activities available to learn about the Sun. We hope to see you all there!