



FLAGSTAFF
FESTIVAL
of SCIENCE

2013

Viola Event of the Year!

Arizona Daily Sun
Organization of the Year!



Life in the

EXTREME

Sept.
20-29

The BEST 10 DAYS
of the YEAR!

PASSPORT

FREE ADMISSION INTO EVERY ACTIVITY



Life in the Extreme

Sept.
20-29

The BEST 10 Days of the YEAR!

2013 Flagstaff Festival of Science Life in the Extreme

It's a spectacular otherworldly season in science!

Join explorer, geologist and Mars rover boss

Professor Steve Squyres as he sets the Festival's pace with amazing discoveries, up-to-the-minute images and extraordinary findings from nail-biting Mars rover missions!

Your journey to explore *Life in the Extreme* will continue as you dive into the darkest oceans, hurdle out into deep space, venture over frigid ice caps, trek across blistering deserts and delve into intriguing mysteries of life on Earth!

More than **80 FREE activities** are scheduled to spark your sense of discovery and capture your imagination, so be prepared to join us for *Life in the Extreme*!

Field Trips ♦ Star Parties

Interactive Exhibits ♦ Science in the Park

Chemistry Magic Shows ♦ 50 Years of Astrogeology

In-school Visits by Scientists... and so much more!

After School Talks

4 p.m. & 5 p.m., Monday through Friday

Lowell Observatory Visitor Center

Appropriate For All Ages!



Twilight Talks

6:30 p.m., Monday through Friday

Museum of Northern Arizona

Branigar/Chase Discovery Center

For High School Students & Lifelong Learners!



The Flagstaff Festival of Science is supported by BBB Revenues from the City of Flagstaff and Flagstaff Cultural Partners.

The Festival is a Flagstaff Unified School District-approved activity.



Mars: NASA / Bell (Cornell U) and M. Wolff (SSP) / Parachute: NASA/JPL/Caltech

Friday, Sept. 20

Shoemaker Keynote Presentation

Life in the Extreme

Steve Squyres, Ph.D.

Cornell University

7 p.m., NAU Ardrey Auditorium

Teams of scientists and engineers continue to navigate the Mars rovers across ancient craters in the extremely dry, cold, and dusty Martian environment. See the very latest data from millions of miles away and hear about the search for evidence of more Earth-like conditions from the lead scientist of the Mars Exploration Rovers.



Dancing in the Extreme

Preceding the Shoemaker Keynote Presentation

Take a delightful visual journey into *Life in the Extreme* with performers from the NAU Community Dance Academy! This pre-flight adventure will prepare you for the journey to Mars and the Shoemaker Keynote Presentation!

Campus Sky Viewing

7:30 – 10 p.m., NAU Campus Observatory

Explore Flagstaff's famous dark skies on a clear night through the 20-inch Barry Lutz Telescope for Education and Training.

Saturday, Sept. 21

Cinder Lake Apollo Astronaut Training Ground Field Trip

9 a.m. – 1 p.m., Meet at Buffalo Park

Visit the Cinder Lake off-highway vehicle area used to train the Apollo astronauts in geology. Four-wheel drive vehicles are required and some off-road driving experience is strongly recommended. An optional visit to Sunset Crater Volcano National Monument may be added. This field trip is most appropriate for 4th grade students and above. **For reservations call 928-556-7002.**

Science in the Park

10 a.m. – 2 p.m., Wheeler Park

Discover *Life in the Extreme* with robots, unusual creatures, life-enhancing inventions, tools from prehistoric cultures, solar energy, forest and wetland ecosystems, avalanches and the exploration of Mars! Scientists are bringing out their telescopes, microscopes and surgical tools for a day of science adventure. **Gather at the bridge for an 11 a.m. guided walk to the Frances Short Park Pond!**



Fantastic Voyage

Noon – 4 p.m., Flagstaff Medical Center

This kid-sized health fair is intended to expose children to the inner workings of the human body and a hospital. Watch vocal chords in action, look deep into your ear canal, examine x-rays and perform surgery using cameras! Check out hands-on activities on both east and west campuses and visit the helicopter in the north parking lot!

The Martian Chronicles Teen Book Club Discussion

1 p.m., Flagstaff City – Coconino County Public Library

Teens ages 12 to 18 are invited to share their thoughts on this short story collection that chronicles the colonization of Mars by humans fleeing a troubled and atomically devastated Earth!

Atlatl Demonstration

1 – 3 p.m., Wupatki National Monument Visitor Center
Hwy 89, 37 miles north of Flagstaff

Observe prehistoric dart throwing! See if you can throw the atlatl, an early form of the bow and arrow. Remnants of the atlatl can be found in the arid deserts of Australia and northern Arizona! From a tree branch to a world-wide hunting weapon, this simple invention helped prehistoric people adapt to their world!

NAU Science & Engineering Day

1 – 4 p.m., High County Conference Center
and Wettaw Biology/Biochemistry Buildings

Rockets, telescopes, earthquakes and bugs! There's discovery around every corner at Northern Arizona University as professors and students demonstrate the tools they use to explore our world!

Virga: the Hunt for Water Opening Reception

6 – 8 p.m., Coconino Center for the Arts

Meet the artists and experience solo exhibitions of installations by Shawn Skabelund and illustrations by Kirsten Furlough as art and science come together.

Joseph Christmas Ives: Life in the Extreme American West, 1854 and 1858

Jerry Snow, Museum of Northern Arizona

7 p.m., Riordan Mansion State Historic Park

Experience 1850s scientific expeditions in the West with Joseph Christmas Ives, second in command on the Whipple Pacific Railroad survey and commander of the lower Colorado River exploration 11 years before John Wesley Powell.

Campus Sky Viewing

7:30 – 10 p.m., NAU Campus Observatory

Explore Flagstaff's famous dark skies on a clear night through the 20-inch Barry Lutz Telescope for Education and Training.

Sunday, Sept. 22

Walk the Rio de Flag/Wildcat Reach

9 a.m., Meet at East Home Depot Parking Lot, NW Corner

Recently cleaned up, enjoy this important 3-mile stretch of the Rio de Flag through Picture Canyon. **For reservations call 928-714-0504.**

Lava River Cave Tours

9 & 11:30 a.m., Coconino National Forest

See lava sickles, splashdowns and other basaltic formations in this rigorous 1½-mile round-trip guided walk through the Lava River Cave. Participants should be in good physical condition, wear sturdy shoes and bring flashlights. **For reservations call 928-606-6653.**

Hart Prairie Preserve Hike

10 a.m., Meet at Fort Valley Plaza Shopping Center, SW Corner

It's fall on the prairie! Take a guided hike through one of Flagstaff's magnificent natural treasures and learn about the wildlife and unusual willow on this 90-minute adventure! Be prepared with sturdy shoes, sun protection and water. No pets, please!

Elden Pueblo Public Dig Day

10 a.m. – 4 p.m., Coconino National Forest

Explore prehistoric life at Elden Pueblo. **Tours will start at 10 a.m., Noon and 2 p.m.** Participate in excavations, artifact analysis, primitive technologies and hunting games. Bring water, a hat and your sense of adventure!

Fort Valley Experimental Station Open House

Noon – 3 p.m., Hwy 180, 1 mile north of Snowbowl Road

Experience how extreme and isolated pioneer life could be in the early 1900s! Visit the nation's first forest research station and discover what early foresters learned about the ponderosa pine ecosystems of the Southwest.

Old Fashioned Farming: Sustainable Lessons from Ancient Fields

1 p.m., 11 miles east of Flagstaff

The Sinagua (meaning "without water") lived in the area many centuries ago and were able to grow crops, establish villages and flourish in an arid land. Visit new sites with the Southwest Archaeology Research Alliance. Learn how Sinagua farmers maximized the region's infrequent moisture and extended the short growing season—techniques we can employ today!

For reservations call 928-600-4947.

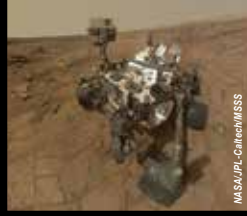
The Martian Chronicles Book Club Discussion

2 p.m., East Flagstaff Public Library

Share your ideas about this 1950s science fiction short story collection that chronicles the colonization of Mars by humans fleeing a troubled and atomically devastated Earth!



Massey/Kugent/Lowell Obs./NSF



NASA/JPL-Caltech/MSSS



Shawn Skabelund



National Weather Service

Big and Little Leroux Springs Field Trip

3 p.m., 1 mile up Snowbowl Road, Near Hotshot Headquarters

Explore the human history, natural history and mountain beauty at Big and Little Leroux Springs. Find out about plans to release water here and what that will mean. **For reservations call 928-714-0504.**

Lowell Observatory Open House

5 – 9:30 p.m., Lowell Observatory

Join Lowell Observatory and the Coconino Astronomical Society for hands-on science experiments that will delight the entire family. Enjoy stargazing through a number of telescopes, view live indoor SlipherVision astronomy shows, see the latest images from the *Discovery Channel* Telescope and more!

Preservation in the Extreme

5:30 – 6:30 p.m., Wupatki National Monument Visitor Center

Hwy 89, 37 miles north of Flagstaff

Walk around the pueblo and learn about the extreme lives of women who helped build Wupatki National Monument in this sunset interpretive program. From working as unofficial archaeologists to making their home in the 1,000-year-old Wupatki Pueblo, these women helped build a national monument! **For information call 928-679-2365.**

Campus Sky Viewing

7:30 – 10 p.m., NAU Campus Observatory

Explore Flagstaff's famous dark skies on a clear night through the 20-inch Barry Lutz Telescope for Education and Training.

Monday, Sept 23

LEGO® Club

3:30 – 4:30 p.m., Flagstaff City – Coconino County Public Library

Kindergarten through 5th grade students are invited to participate in the fun with LEGO® science building challenges.

Bats!

Carol Chambers, Ph.D., NAU

4 p.m., Lowell Observatory

There are 28 different types of bats living in northern Arizona's caves, canyons, deserts and forests. Find out about these delicate night creatures that can sleep upside down and use their radar to eat hundreds of insects each night—some even eat scorpions!



Where Should We Look for Life on Mars?

Ken Tanaka, Ph.D., U.S. Geological Survey

5 p.m., Lowell Observatory

Where might life have survived on the red planet? Why is NASA focused on ancient Martian terrains in the search for extraterrestrial life? Do geologic maps produced at the U.S. Geological Survey in Flagstaff help determine where NASA and the European Space Agency send future roving laboratories? Join this Mars geologic mapper to find the answers to these questions.



Chemicals Impacting Wildlife

Catherine Propper, Ph.D., NAU

6:30 p.m., Museum of Northern Arizona

Human-made chemicals find many routes into our environment and some of these compounds affect wildlife. Find out where these chemicals are coming from, how they are impacting development and reproduction, and what this may mean for wildlife and human health.



Extreme Pathogens: Can the Zombie Apocalypse Really Happen?

David Engelthaler, TGen North

6:30 p.m., NAU Cline Library

Can a superbug cause a zombie apocalypse? While movies and TV shows provide great fodder for our imaginations, could it be that the next outbreak will actually lead to the walking dead and World War Z? Find out how microbes may already be ahead of Hollywood.

Tuesday, Sept. 24

Mount Elden Bird Walk

8 – 10 a.m., Mount Elden Study Area

Grab your binoculars and learn about the variety and adaptations of birds in our ponderosa pine forests with the Northern Arizona Audubon Society! **For directions and reservations call 928-774-4229.**

Toddler Tales

10:15 a.m., Flagstaff City – Coconino County Public Library

Two and three-year-olds are invited to hear stories about living in extreme locations!

Virga: the Hunt for Water

11 a.m. – 5 p.m., Coconino Center for the Arts

Explore an exhibition of installations by artist Shawn Skabelund as science comes to life.

Weather in the Extreme

Brian Klimowski, Ph.D., National Weather Service

4 p.m., Lowell Observatory

Meteorologists are on the front line of protection from super storms. Find out what these scientists are looking for as blizzards, tornadoes, hurricanes and other massive storms move toward you!



The Mars Polar Night

Timothy Titus, Ph.D., U.S. Geological Survey

5 p.m., Lowell Observatory

What happens in the dark doesn't stay in the dark! During the Martian winter, a large part of the polar region remains in darkness for months and temperatures drop to nearly 200° below zero! It is so cold that the atmosphere, mainly carbon dioxide, freezes into dry ice and dry ice snow. Find out what happens when the sun finally rises!





Cristina Eisenberg



Jeff Sorensen AZGFD



Thinking Like a Mountain: Wolves, Deer, Elk, and Aspen in the West

Cristina Eisenberg, Ph.D., Conservation Biologist

6:30 p.m., Museum of Northern Arizona

Nearly a century ago, Aldo Leopold observed that wolves are apex predators whose presence touches everything in a food web. For the past decade, Dr. Eisenberg has conducted research throughout the West on the relationships between wolves, deer and elk, and aspen trees. Find out what she has learned from the forest!



Wednesday, Sept. 25

Toddler Tales

10 a.m., East Flagstaff Community Library

Two and three-year-olds are invited to hear stories about living in extreme locations!

Preschool Express

10:30 a.m., Flagstaff City – Coconino County Public Library

Jumpstart young minds with science stories!

Virga: the Hunt for Water

11 a.m. – 5 p.m., Coconino Center for the Arts

Explore an exhibition of installations by artist Shawn Skabelund as science comes to life.

Prehistoric Agriculture and Sustainability Presentation

Noon – 1 p.m., Flagstaff Area National Monuments, 6400 N. Hwy 89

Recent Wupatki National Monument research provides insight into the prehistoric use of water in our arid environment. Bring your lunch and hear about prehistoric agriculture and water control techniques, and how we can live more sustainably today. **For reservations call 928-526-1157, ext. 225.**

The Crafty Clan

2:30 – 4 p.m., East Flagstaff Community Library

Kindergarten through 12th grade students are invited to learn about science through craft-making activities.

Busy Fingers

3:30 – 5 p.m., Flagstaff City – Coconino County Public Library

Kindergarten through 3rd grade students are invited to learn about science through craft-making activities.

A Snail's Tale

Jeff Sorensen, Arizona Game and Fish Department

4 p.m., Lowell Observatory

Scientists have to wear unusual gear and work in extreme temperatures to reach the endangered Kanab ambersnail. Hidden under poison ivy in a Grand Canyon spring, this snail is under attack by a parasite that is changing its behavior and making it vulnerable to birds.



Extremes in Marine Life: Why Males and Females Look Different (Or Not)

Stephen M. Shuster, Ph.D., NAU

5 p.m., Lowell Observatory

Many animal species exhibit differences in appearance between males and females that are truly extreme. Deep sea anglerfish, parasitic barnacles, black widow spiders and elephant seals all exhibit remarkable differences. The reason has to do with the circumstances in which reproduction occurs. Learn how variation in fertility can cause males and females to look the same or very different!



Worm Composting Workshop

6 p.m., East Flagstaff Community Library

Worm composting cuts down on waste and produces healthy, natural fertilizer for potted plants or gardens. Learn an easy way to compost fruit and vegetable scraps!

Secrets Beneath the Ice

6 p.m., Sinagua Middle School

This film will show how scientists live and work in the almost entirely ice environment of Antarctica, where chocolate is one of the tools used in the battle to stay warm! Watch as scientists venture out onto the ice to live for months in small camps as they uncover hidden clues about the continent's changing climate. A discussion guided by science educators and scientists will follow the film.

The Future of Astrogeology

Laszlo P. Keszthelyi, Ph.D., U.S. Geological Survey

6:30 p.m., Museum of Northern Arizona

Whether we are headed for the Moon, Mars, or asteroids, going in person or sending robots, Flagstaff's USGS Astrogeology Science Center will be playing a key role in our ongoing investigation of the solar system! This talk, commemorating the 50th anniversary of astrogeology in Flagstaff, will describe how our vision is to be realized during the next 50 years!



From the Swab to the Cloud: Advances Toward Understanding our Microbial World

Greg Caporaso, Ph.D., NAU

6:30 p.m., NAU Cline Library

Bacteria make up the vast majority of life on Earth. Explore microbial life in extreme environments—including hot springs approaching 100° Celsius in Yellowstone National Park; the Atacama Desert which averages less than 1 millimeter of rain every 10 years; and the vertebrate gut, where microbes thrive in a delicate relationship with their host.

Notes



Angelo Koberniks



Sylvester Allred



Thursday, Sept. 26

Virga: the Hunt for Water

11 a.m. – 5 p.m., Coconino Center for the Arts

Explore an exhibition of installations by artist Shawn Skabelund as science comes to life.

LEGO® Club

3:30 – 4:30 p.m., East Flagstaff Community Library

Kindergarten through 5th grade students are invited to participate in the fun with LEGO® science building challenges.

Avalanche! The Science Behind the Snow Slide

David Lovejoy, Kachina Peaks Avalanche Center

4 p.m., Lowell Observatory

Freezing...melting...moving...**AVALANCHE!** In a snowy winter, avalanches occur on the San Francisco Peaks. Learn what happens when a snowpack becomes a snow slide, why an avalanche has so much destructive power and how you can identify the signs of danger!



What's New on the Moon: Groundbreaking Science from Current Missions

Lisa Gaddis, Ph.D., U.S. Geological Survey

5 p.m., Lowell Observatory

Several recent missions from the United States and other nations are studying the Moon in great detail. From new views of lost spacecraft, to wrinkles suggesting planet-wide shrinkage, to mapping more than 50 strange "mercury-blob" volcanic features, the new data are both solving mysteries and finding new ones!



A Green Fire: Aldo Leopold and a Land Ethic for Our Time

6 p.m., Sinagua Middle School

This High Definition film explores conservationist Aldo Leopold's life in the early part of the 20th century beginning in the Southwest. His land ethic ideas continue to be applied all over the world.

The Asteroid 4 Vesta and Extremes of the Main Asteroid Belt

Timothy Titus, Ph.D., U.S. Geological Survey

6:30 p.m., Museum of Northern Arizona

The ion-propulsion drive spacecraft Dawn spent one Earth year in orbit around the second largest asteroid in the main Asteroid Belt. Experience the discoveries of this journey to an extreme environment!



Flagstaff STEM City Celebration

6:30 – 8:30 p.m., Coconino Community College Lone Tree Campus

Flagstaff STEM City kicks off its second year with awards for Flagstaff's STEM Teacher and Student of the Year. Learn about our new STEM City Center and how you can engage in America's First STEM Community.

A Thousand Invisible Cords: From Genes to Ecosystems

6:30 p.m., NAU Cline Library

Viewing this eco-documentary with Regents' Professor Tom Whitham, Ph.D., may change how you see the world. No longer do we consider species as isolated members of ecosystems. In the words of 19th century naturalist John Muir, "When we try to pick out anything by itself, we find that it is bound fast by a thousand invisible cords that cannot be broken to everything in the universe."

The Abert's Squirrel

7 p.m., Coconino Center for the Arts

The Abert's squirrel is the acrobat of the forest! Join in a dynamic discussion about this popular forest dweller with biologist Sylvester Allred, Ph.D., and artist Shawn Skabelund.

Friday, Sept. 27

NACET and STEM City Center Open House and Demonstrations

11 a.m. – 5 p.m., 2225 N. Gemini Drive

Up on McMillan Mesa, today's entrepreneurs are building the world of tomorrow—creating faster-healing skin, space station ceramics, super athletes and amazing software. Meet the creative minds behind the innovations and see how science fiction is becoming science fact!

Virga: the Hunt for Water

11 a.m. – 5 p.m., Coconino Center for the Arts

Explore an exhibition of installations by artist Shawn Skabelund as science comes to life.

The Archaeology of Disaster

2 – 3:30 p.m., Sunset Crater Volcano National Monument

Hwy 89, 12 miles north of Flagstaff

Imagine what prehistoric people thought when Sunset Crater Volcano erupted! Join an archaeologist at the Lava Flow Trail for a discussion on how humans adapted to this extreme environmental change.

Recycling Center Tour with Willow Bend Environmental Education Center

3 – 4 p.m., Materials Recovery Facility on Butler Ave. and Babbitt Dr.

What happens when you throw something into the green recycling receptacle? Where does it go? Find out on a behind-the-scenes tour of Flagstaff's materials recovery facility! **For reservations call 928-779-1745.**

Roving in the Extreme Environment of Mars

Ken Herkenhoff, Ph.D., U.S. Geological Survey

4 p.m., Lowell Observatory

Join in the journey of these extreme space missions as Mars rovers *Curiosity* and *Opportunity* explore our solar system neighbor!





It's Down There! How Water in the Ground Works

Brad Garner, U.S. Geological Survey

5 p.m., Lowell Observatory



We all rely on ground water, but when we don't see it we probably don't think much about it. Explore where researchers have found ground water, how it got there and how this underground system works.

CCC Celebration in Science

6 – 8 p.m., Coconino Community College Lone Tree Campus

Join Coconino Community College scientists in exploration! Learn about the diversity of life forms in our region, the geologic strata and its history, the world of physics, the human body and expanse of the skies!

The Comets Are Coming!

David Schleicher, Ph.D., Lowell Observatory

6:30 p.m., Museum of Northern Arizona



New comets are constantly being discovered while others are returning on a regular basis. This fall, one of each kind will be in Flagstaff's skies. Learn what makes each special and why the newcomer (Comet ISON) probably won't live up to its early hype.

Campus Sky Viewing

7:30 – 10 p.m., NAU Campus Observatory

Explore Flagstaff's famous dark skies on a clear night through the 20-inch Barry Lutz Telescope for Education and Training.

Saturday, Sept. 28

Mount Elden Bird Walk

8 – 10 a.m., Mount Elden Study Area

Grab your binoculars and learn about the variety and adaptations of birds in our ponderosa pine forests with the Northern Arizona Audubon Society!

For directions and reservations call 928-774-4229.

Sunset Crater Volcano National Monument Open House

8 a.m. – 5 p.m., Hwy 89, 12 miles north of Flagstaff

Tour the youngest lava flow in northern Arizona. Join a Ranger for Lava Flow Walks, take in volcano demonstrations and explore the hands-on activities in the museum. Junior Ranger activities are available all day!

Wupatki National Monument Open House

8 a.m. – 5 p.m., Hwy 89, 37 miles north of Flagstaff

Get to know the incredible cultures that farmed and traded in the extreme desert environment of Wupatki National Monument. Join in the fun with hands-on kids activities. Ranger programs and Junior Ranger activities are available all day!

Walnut Canyon National Monument Open House

8 a.m. – 5 p.m., I-40 east to Exit 204

Walk through layers of time, tour the museum, join in family friendly activities or attend a Ranger-led interpretive program! Junior Ranger activities will be available all day!

Turning the Clock Back at Laws Spring Field Trip

9 a.m. – Noon

I-40 west to Exit 171, left on Route 66 to interpretive pullout

Learn how the first Native American cultures and European explorers adapted to northern Arizona's extreme environment. Explore the area's petroglyphs and rich history through early historic photographs. Meet at the interpretive pullout and drive on a well-maintained Forest Service dirt road. Bring a camera, water, snacks and rain gear. Expect a short, rocky ¼ mile hike. Sign up at the Williams Ranger District, 928-635-5600.

Willow Bend Environmental Education Center Open House

9 a.m. – Noon, 703 E. Sawmill Road

It's an adventure in water, worms and wildlife! Explore Willow Bend's building and grounds while learning about riparian habitats with NAU's Watershed Research and Education Program. Join in a natural history scavenger hunt and other fun activities!

The Arboretum at Flagstaff Open House

10 a.m. – 1 p.m., 4 miles south on Woody Mountain Road

Tours, scavenger hunts, puzzles, science demonstrations and crafts are part of the fall celebration in Flagstaff's most famous high-elevation garden!

National Weather Service Open House

11 a.m. – 5 p.m., Camp Navajo Army Depot in Bellemont

I-40 west to Exit 185

Hailstorms, blizzards, tornadoes and lightning are among the forces that have shaped our northern Arizona landscape. Find out how meteorologists use their weather-predicting tools to help us plan our day. Don't miss the weather balloon launch at 1 and 4 p.m.

Virga: the Hunt for Water

11 a.m. – 5 p.m., Coconino Center for the Arts

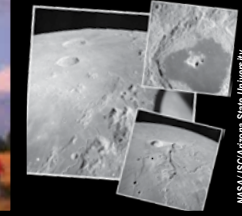
Explore an exhibition of installations by artist Shawn Skabelund as science comes to life.

U.S. Naval Observatory Open House and Star Party

6:30 – 10 p.m., I-40, 5 miles west of Flagstaff to Exit 191

The Navy uses the stars to set the world's clocks and it all happens west of Flagstaff! Take a tour of this important observatory and view the night sky.

Notes



NASA/JSC/Arizona State University

An Eastern Intellectual in the Far West: Dr. Colton and the Flagstaff Intellectual Community, 1912-1946

David Wilcox, Ph.D., Museum of Northern Arizona

7 p.m., Riordan Mansion State Historic Park

After their Far West honeymoon stay in Flagstaff, zoologist Harold Sellers Colton and his wife, artist Mary-Russell Ferrell Colton, returned here to reinvent themselves as archaeologists, a geologist, a museum director, and a curator of art and ethnology. Join in their adventure!

Campus Sky Viewing

7:30 – 10 p.m., NAU Campus Observatory

Explore Flagstaff's famous dark skies on a clear night through the 20-inch Barry Lutz Telescope for Education and Training.

Sunday, Sept. 29

Meteor Crater Open House

8 a.m. – 5 p.m., I-40, 43 miles east of Flagstaff to Exit 233

This 50,000-year-old crash site is Earth's best-preserved meteor impact crater. Explore interactive displays or take a ½-mile guided rim tour on a paved trail. A 2½-mile guided rim tour requires reservations and participants must be at least 12 years old. **For reservations call 928-289-5898.**

Hart Prairie Preserve Hike

10 a.m., Meet at Fort Valley Plaza Shopping Center, SW Corner

It's fall on the prairie! Take a guided hike through one of Flagstaff's magnificent natural treasures and learn about the wildlife and unusual willow on this 90-minute adventure! Be prepared with sturdy shoes, sun protection and water. No pets, please!

Homolovi IV Guided Tour

**10 a.m. – Noon, Homolovi State Park Visitor Center
I-40, 63 miles east of Flagstaff to Exit 257**

This rare tour starts with an introduction to the site and its tie to the Hopi people. Then, caravan in your own vehicle 12 miles to the pueblo (the last ¼-mile is a dirt road). Expect an easy ½-mile hike over uneven ground. **This tour is limited to 20 participants. For reservations call 928-289-4106.**

Snowbowl Science Chairlift Ride

10 a.m. – 4 p.m., Arizona Snowbowl

Glide to the Alpine Tundra on the Agassiz chairlift and meet a Park Ranger at the top to learn about the four different types of volcanoes you can see from 11,500 feet! **Call for one of 50 free seats available (maximum of 2 people per reservation, please!) 928-779-1951.**

NASA/USGS RPIF Open House

Noon – 4 p.m., USGS Bldg. 6, 2255 N Gemini Dr.

Visit the local NASA Regional Planetary Information Facility and see what the USGS Astrogeology Science Center has been doing to support human-kind's exploration of the solar system through the last 50 years!

Old Fashioned Farming: Sustainable Lessons from Ancient Fields

1 p.m., 11 miles east of Flagstaff

The Sinagua (meaning "without water") lived in the area many centuries ago and were able to grow crops, establish villages and flourish in an arid land. Visit new sites with the Southwest Archaeology Research Alliance. Learn how Sinagua farmers maximized the region's infrequent moisture and extended the short growing season—techniques we can employ today! **For reservations call 928-600-4947.**

Extreme Pathogens: A Look Inside TGen's Microbial World

**1:30 – 3:30 p.m., Airport Business Park
3051 W. Shamrell Blvd., Ste. 106**

Go behind the mysterious doors at TGen North where the next generation of science is occurring in our back yard. The open house and tours will feature a look inside the science of TGen and allow for interactions with TGen researchers.

From Forest Fires To Floods Field Trip

**2 p.m., Dry Lake Hills, Meet at the Y intersection
at Schultz Pass and Mount Elden Lookout Road**

Join the Flagstaff Watershed Protect Project team for a field trip into the Dry Lake Hills. Learn about the threats our forests face and how we can work together to protect the environment and our community. Wear sturdy hiking shoes and weather-appropriate clothing. Bring water and your love of nature! **For reservations call 928-213-2500.**

Nightlife in the Extreme

6 – 7:30 p.m., Buffalo Park, Meet in the Parking Lot

Enjoy an introduction to the night sky with an easy, flat walk around Buffalo Park as day turns to night. Bring flashlights and stay after the walk to view the sky through telescopes and binoculars.

Dusting off the Apollo Photographs: Mapping the 1970s Moon with Today's Technology

Kenneth Edmundson, Ph.D., U.S. Geological Survey

7 p.m., Riordan Mansion State Historic Park

In the early 1970s, specialized cameras on board the last three Apollo missions photographed nearly 25 percent of the Moon. Today, scientists from Flagstaff's U.S. Geological Survey, Arizona State University, and NASA are working together to map the lunar surface from these 40-year-old photographs. Hear the fascinating story behind this seldom noted aspect of the Apollo program.

Campus Sky Viewing

7:30 – 10 p.m., NAU Campus Observatory

Explore Flagstaff's famous dark skies on a clear night through the 20-inch Barry Lutz Telescope for Education and Training.



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Arizona Daily Sun
Organization of the Year!

Life in the Extreme

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The BEST 10 Days of the YEAR!

The 2013 Flagstaff Festival of Science is made possible through the generous support of our sponsors:

Supernova Friends



Galactic Friends



Flagstaff Medical Center Foundation

Geile Charitable Fund



Molly and Joseph Herman Foundation



Stellar Friends

Charlot M. Root



William Lowell Putnam

Planetary Friends

- Arizona Snowbowl + Coconino Community College
- Drs. Robert and Sheila Edgar + EnviroSystems Management
- Flagstaff Unified School District + Joy Cone Co.
- 92.9 KAFF/ 93.9 The Mountain/Hits 106 + 103.7 Eagle Rocks
- KOLT/Rewind/The Wolf/The Big Talker Radio
- Sunny 100 and The Q 102.9 + NAU Space Grant
- Nestle Purina PetCare Co. + Pepsi Cola Bottling Co. of Flagstaff
- Rocky Mountain Research Station

Cometary Friends

- Bryan and Barbara Bates + Byron and Jennifer Hayes
- Charles and Dolores Biggerstaff + Clear Aire Audio
- Jim and Linda Snook + The Kahl Family
- Paul and Deborah Holbrook + Russell and Tanya Tweed
- W. Leibfried Environmental Services

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