



What's Up in Space?



image by Ernie Wright, courtesy NASA

Mini Fact:

This graphic shows where the solar eclipse will be most complete. You can see more at svs.gsfc.nasa.gov/4518.

Cassini's Grand Finale

What were you doing 13 years ago? Were you born yet?

Since June 2004, the Cassini spacecraft has been orbiting Saturn and sending back valuable images of the planet and its rings and moons. This summer, Cassini will begin its final mission. NASA is calling it Cassini's "Grand Finale."

Toward the end of April, the shape of Cassini's orbit was changed so that the craft could begin to "dive" between the planet and its rings. According to experts, this is "uncharted territory" — because of dust and other particles in the orbit, Cassini could be damaged. A total of 22 orbits will be made in this area between the planet and its rings.

The end of a mission

In September, Cassini will begin a controlled descent into Saturn's upper atmosphere. This will be the end of its mission.

As Cassini speeds toward Saturn, it will still be collecting information. It will make maps of Saturn's gravity and magnetic fields, which may help scientists figure out how fast

Saturn rotates. It also may be more clear what the rings are made of.

Cassini's data

The spacecraft has gathered data about Saturn's seasons and storms, including lightning. It created images of the six-sided, or **hexagonal**, jet stream around Saturn's north pole. The planet takes about 29 Earth years to orbit the sun, so its seasons and storms move in a cycle of about 28 to 30 years.

Summer solar eclipse

There's another big event on the space calendar this summer: a total solar **eclipse**. (An eclipse happens when one body in space passes in front of another.)

On Aug. 21, the moon will pass directly in front of the sun and completely block its light over a large path from Oregon to South Carolina. According to experts, for 1 1/2 to 2 minutes, it will be as dark as dusk in the eclipse's path. Crickets will start to chirp!

The eclipse will be visible across the entire United States, but in some places it will appear as a partial eclipse, not a total one. It has been almost 100 years since a solar eclipse has crossed over the continental United States.

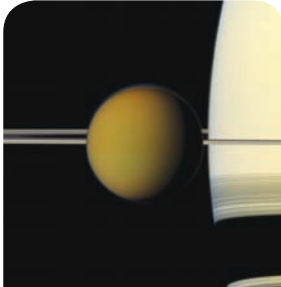


image courtesy NASA/JPL-Caltech/Space Science Institute

Cassini discovered that Saturn's largest moon, Titan, likely has a liquid ocean beneath its surface. It's probably made up of water and ammonia.

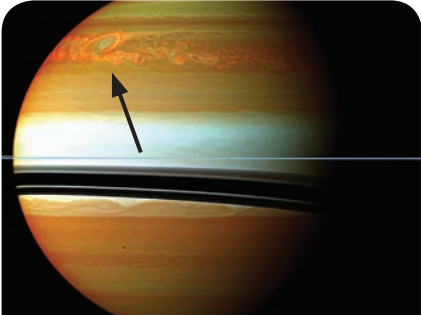


image courtesy NASA/JPL-Caltech

These clouds in Saturn's northern hemisphere in 2011 indicate the end of a storm.

A new class

In 2016, NASA opened applications for astronauts and received more than 18,000! This summer, the space agency will welcome between eight and 20 new people to its training program.

The new astronaut candidates will train for about two years before being eligible for a mission to the International Space Station (ISS). They also may work on the Orion spacecraft, which is designed for deep space exploration by humans.

Applicants to the program must have a degree in math, biological, physical or computer science, or engineering and must have some professional experience in their field.

Time in space

On April 24th, Peggy Whitson, the current ISS commander, set the record for the most **cumulative** time in space. This means that over several missions, she has spent more time in space than any other U.S. astronaut.



image courtesy NASA

Astronaut Peggy Whitson has performed eight spacewalks totaling more than 53 hours.

Resources



On the Web:

- svs.gsfc.nasa.gov/12481
- nasa.gov/astronauts
- go.nasa.gov/2no9UvU

At the library:

- "Astronaut: Life as a Scientist and Engineer in Space" by Ruth Owen
- "Eclipses" by Nick Hunter

Try 'n' Find

Words that remind us of space are hidden in this puzzle. Some words are hidden backward or diagonally, and some letters are used twice. See if you can find:

ASTRONAUT,
ATMOSPHERE, CASSINI,
CLOUDS, CUMULATIVE,
ECLIPSE, FINALE,
GRAVITY, HEXAGONAL,
MAGNETIC, NASA, ORBIT,
ORION, RINGS, SATURN,
SCIENCE, SOLAR,
SPACECRAFT, TRAINING.

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



Cook's Corner

Easy Guacamole

You'll need:

- 2 medium to large avocados
- juice from half of small lemon
- 1/4 teaspoon garlic powder

- 1/4 cup bottled salsa

What to do:

1. Peel, then mash avocados in medium-size bowl.
2. Stir in lemon juice, garlic powder and salsa. Mix well.
3. Chill for a few hours to blend flavors.
4. Serve with tortilla chips. Serves 2 to 4.



* You'll need an adult's help with this recipe.

Puzzling

Unscramble the words below that remind us of our solar system.

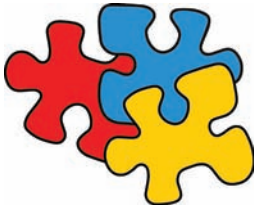
eltpnas

osmno

eartvl

oscent

Answers: planets, moons, travel, comets.



Mini Jokes



Sydney: What's an astronaut's favorite candy bar?
Sam: A Mars bar!

Eco Note



Researchers say blood-sucking flies can be used to detect emerging diseases in wild animals before the pathogens can spread to humans. A French researcher found 18 previously unknown malaria parasite species in the blood of more than 1,200 African flies.

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Thank You



The Mini Page thanks Laurie Cantillo of the Planetary Science Division and Stephanie Schierholz, acting press secretary, NASA, for help with this issue.

Teachers:

For standards-based activities to accompany this feature, visit: bbs.amuniversal.com/Everyone_content/Teaching_Guides/The_Mini_Page/

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