

Chapter 1 : Saturn's Inner Rings - Facts about Saturn - Astronomy for Kids

*A Look at Saturn (Astronomy Now!) [Suzanne Slade] on blog.quintoapp.com *FREE* shipping on qualifying offers. The mysteries and wonders of Saturn are introduced in this fascinating title.*

In fact many say their first sight of it was what turned them on to astronomy. Viewing Saturn in a good telescope often draws gasps from visitors, who after a lifetime of seeing cartoon ringed planets are awed by viewing the original. But you can never see Saturn as well as you want! Try to magnify it too much and it defies you by turning into a blurry mess. Viewing Saturn is indeed a jewel, exquisite but tiny. These images suggest how the ringed planet Saturn might will look when seen through a telescope with an aperture 4 inches mm in diameter top and through a larger instrument with an 8-inch aperture bottom. The image pair on the right suggest how the ringed planet might look through a small telescope on a mediocre night top and through a larger, better telescope on a night when the air is especially still bottom. A good 3-inch scope at 50x can show them as a separate structure detached on all sides from the ball of the planet. Details in the rings can be viewed with a small scope during spells of good seeing. The plainest is the black Cassini Division between the A and B rings. Shadings within the rings are even easier to discern. The outer A ring is plainly dimmer than the broader B ring inside it. To me, both the A and B rings seem to brighten smoothly to a maximum at the edges of the Cassini Division. It shifts from the inside edge to the outside edge of the ring system about every six months from our Earthly viewpoint. Viewing Saturn is prettier when the shadow is on the outside edge; a black line then divides the rings from the ball, improving the 3-D effect. Enter your email to download the PDF and receive our weekly e-newsletter with the latest news from the world of astronomy. A 2-inch scope will show Titan. A half dozen are sometimes within reach of a inch. All the labeled portions of the ring system, except ring F, are visible from Earth. Controversy surrounds the possibility that Earthbound observers may have seen ring F on several occasions in the 20th century. Click on the image for the complete photo. In a high-quality planetary telescope of at least 6- or 8-inch aperture on a night of excellent seeing, the rings become more interesting. Near the outer edge of the A ring is the extremely thin Encke Division, an extreme test for any telescope. On a night when the seeing was so steady I could use x on my The rings also contain thin, grayish minima in brightness. Julius Benton, the Saturn section coordinator for the Association of Lunar and Planetary Observers ALPO , claims that as many as 12 are detectable with large telescopes, "of which only about four show any real recurrent visibility from observing night to observing night. Ring C, the crepe ring or dusky ring, can be either difficult or easy to make out. Many have seen it without knowing it. At such times the duskiess you see against the planet just inside the B ring is the semitransparent C. Changes in the belts and zones become apparent, even obvious, to regular Saturn-watchers " one of the benefits of long-term study. The larger and better your scope the more likely you are to see enough detail to note changes in it. Such storms are generated by an upwelling of warmer air, like a terrestrial thunderhead. This storm extended about 8, miles 12, kilometers east-west. Spots and other markings occasionally appear amid the belts and zones. Major white eruptions happen about every 30 years once per Saturnian year. Lesser bright and dark spots appear more commonly. Higher latitudes rotate more slowly, in about 10 hours 38 minutes. Colors change on Saturn too, but only subtly. The best way to pin them down is to note the relative brightnesses of different areas as seen through red, green, and blue filters. Oddly, the two ends ansae of the ring system sometimes appear to differ slightly in color. Using red and blue filters, see if one end looks brighter than the other in either color of light. Overall, I find that a yellow filter sharpens up the whole planet a trace, probably by suppressing the differences in atmospheric turbulence at the far ends of the spectrum. Red and blue images quiver and shimmer out of phase with the yellow near the middle of the spectrum. This is the same effect that causes the bright winter star Sirius to twinkle in vivid colors.

Chapter 2 : Now is the Time for Observing Saturn in the Night Sky - Universe Today

Cassini takes a close up look at Saturn's moon Pandora 27 December Astronomy Now NASA's Cassini spacecraft has captured one of the highest-resolution views ever taken of Saturn's moon Pandora.

Comments On September 15, , the Cassini spacecraft plunged into Saturn, burning up after a stunning 13 years of orbiting the ringed wonder. That planet, those moons, those ringsâ€” everything Cassini saw and experienced and sent back to us humans on Earth was gasp-worthy and awe-inspiring. We had never seen the like, and it may be decades before we do again. My own feelings were easy to recount ; Saturn has been a big part of my life for decades, and was in no small way an impetus for me to seek out a career in astronomy. And there will be galleries of images too. Of course there will be! It did that a staggering 22 times â€” the last five actually passing through the upper parts of the atmosphere â€” before the Final Dive. The painting is lovely, but there are a few things that give away its unreal pedigree. Self-photobombing is frowned upon in such circumstances. On top of that, the planet is bright, as are the rings, so seeing any stars at all in the same image would be nearly impossible, let alone hundreds of them. I do love this digital painting. But we should get this right. Zoom In The actual last image Cassini took of Saturn before its final plunge. This was taken on September 14, when the spacecraft was , kilometers above the cloud tops. This image was taken from a height of , kilometers a little less than twice the distance the Moon is from Earth , and you can see some of the ghostly faint inner rings near the bottom. Quite a few images were taken at this time, and many were in different filters, allowing a natural color composite to be made, too: These were the last few images Cassini took in the mission. Compared to that, Saturn looks almost subdued. At around the same time a camera called the Visible and Infrared Mapping Spectrometer took an image at a wavelength of 5 microns, about 7 times longer than the reddest light our eyes can see. This type of thermal imaging shows heat leaking up from the interior of Saturn, while the cold clouds above it block that light so they appear dark, silhouetted against it: But when we do, we should do it right. We owe it, if not to the spacecraft itself, then to the hundreds of people who worked on it, some for their whole careers. Cassini was an avatar for us, a representative of us, and it represented the best of us. Zoom In Artwork depicting the final moments of the Cassini spacecraft on September 15, , as it burned up in the atmosphere of Saturn.

Chapter 3 : Facts About Saturn - Our Solar System - Astronomy for Kids

30 March Astronomy Now NASA's Cassini probe has entered a new series of orbits which bring it close to Saturn's icy moons. It has already captured the highest resolution view yet of Rhea, Saturn's second largest moon.

I was in rural Wyoming, and the sky was a bit hazy, but it was the brightest object in that part of the sky. It looked a bit funny hanging there, the stars in Scorpius appearing to curve around it as if nestling the planet. But those stars were hundreds of thousands of times farther away from me, toward the bustling center of our galaxy, and have no claims nor cares about objects in our provincial solar system. But of course, we live here. Exoplanets with trillions of tiny icy particles forming annuli sprawling across their sky, a fleet of weird and wondrous moons circling near those rings, each carving gravitational calligraphy in their wake. But Saturn is our own and, that night, it was my job to show it to other people. I had my telescope set up in a field, and a couple of dozen people standing in the increasingly chilly mountain air waiting to see the planet. Spirits were still high from the amazing astronomical event we had, as a group, witnessed earlier that week, and most had already had a go. I live for these moments. I adjust the eyepiece, making sure the planet is centered and focused. Then, I back away from the telescope and tell the first person in line to take a look. She crouches down a bit to look into the eyepiece, and I do what I always do: I watch her face. Because what happens next is magic. The simultaneous gasp, smile, laugh of delight, eyes widening in disbelief. And see that star to the left of it? And you can see the gap between the planet and the rings, too. Then I point out where Saturn is in the sky so she can see it for herself, and tell her that the light she sees now left Saturn over an hour ago, when we were finishing up dinner. This elicits another little gasp from her, her brain taking all this in. Watching this is like drinking joy. Being a part of it is a gift. We humans have only understood this for a very short time. Yes, a camera designed to more or less reproduce what our eyes see, but also equipped to scrutinize light from the planet in a hundred different ways. No human has been to Saturn, but our robotic proxies have been, and in this latest case, its senses are so much more exquisite than ours. Geysers of water, dunes of hydrocarbons, wide girdles of snow, moons polluting one another, weather patterns changing with seasons, huge wakes of material bobbing up and down as well as in and out as tiny worldlets pass by. Wonders to satiate any brain, no matter how inured by the mundanities of everyday reality. Yet these wonders do happen every day, on and above this extraordinary planet. They will be studied with bliss and exhilaration and relentless determination by scientists across our own planet for decades to come. More insight will be teased from these observations, some ever more subtle and incremental, some creating a gestalt as multiple phenomena are assembled into bigger conclusions via a framework of science. And our understanding will grow. This is the gift of our Saturnian traveler. To increase our knowledge and broaden our grasp while giving us ever more reason to delight in the overwhelming beauty of a world hundreds of times more voluminous than our own. From now on, when I stand in my yard, or in some other state, or anywhere on this blue-green world, and my own gaze falls upon that yellow unblinking light in the sky, I know a smile will slip onto my lips. Because I know Saturn better now than I ever have, and that the same is true for so many others like me, like you, like everyone who chooses to wonder, everywhere on Earth. And for that, for that, I thank you. The image shown above is a mosaic composed of some of the very last images Cassini ever took of Saturn, on September 13,

Chapter 4 : Saturn | blog.quintoapp.com

Saturn's rings are made of ice and rock particles, some as big as a minivan. If you could find a bathtub big enough to put Saturn in, it would float. Saturn looks like a ball that is being squished.

Saturn Saturn Saturn, the sixth planet from the Sun, has a ring system made up of ice and rock particles, some as big as a minivan. Monday, March 10, In this image from Voyager 2, Saturn is shown with three of its moon from left to right: Tethys, Dion, and Rhea. It is the second-largest planet in the solar system and has a diameter of 74, miles , kilometers. Distance from the Sun: Saturn is the sixth planet from the Sun, with an orbit roughly million miles 1. Orbit around the Sun: It takes Saturn only 11 hours to spin on its axis one time. Saturn does not have solid surface. Saturn holds mostly hydrogen 97 percent and helium 3 percent. Saturn is also called the "ringed planet. If you could find a bathtub big enough to put Saturn in, it would float. Saturn looks like a ball that is being squished. Because Saturn spins so fast, its middle bulges while its poles flatten out. This makes Saturn look like somebody is squeezing it. There are 47 moons orbiting Saturn. One of these bodies looks like the "Death Star" spaceship from Star Wars: Mimas has a large crater that covers one-third of the small moon. Saturn was the Roman god of the harvest and the father of Jupiter. He is identified as the Greek god Cronus.

Chapter 5 : Astronomy | Canadian Astronomy

Saturn and Jupiter are easy to spot in the early evening sky now. During the winter and early spring these planets were at their best when they reached their respective oppositions to the Sun.

But why does Saturn have rings? What are they made of? What do they do? Illustration of Saturn and its rings. Each ring travels around Saturn at a different speed. They are also the largest rings in our Solar System spanning up to , miles. However, at the time, his telescope was not strong enough to see details. Because of this, he did not realize that what he saw were rings. Ever since his sightings, early astronomers wondered what they could be. When Galileo first saw Saturn he thought it was two other planets close together. A few years after Galileo first saw Saturn it disappeared. He thought that perhaps Saturn had eaten his sons. This was because the rings were in their flat plane phase in relation to Earth. Astronomers have named the rings as letters, from Ring A all the way to Ring G. The rings are mostly pure water ice. But there are also some rocks , thiolins, and silicate minerals in there too. With the help of missions, such as Cassini and Voyager, we have been able to study the rings more closely. You see, every This is because Saturn tilts on its axis, just like Earth. When Saturn reaches the midpoint of its tilt, the rings are in a flat plane with Earth. This makes the rings disappear from our view. During this time, researchers can search for more moons around Saturn. This is because the glare of the rings is absent. Back in Giovanni Cassini, an astronomer saw a large obvious gap. This gap we now know as the Cassini Division. Near the edge of the rings is another gap called the Encke gap. Distance from Saturn miles:

Chapter 6 : The Position of Saturn in the Night Sky: to

*A Look at Saturn (Out of This World) [Ray Spangenburg, Kit Moser, Diane Moser] on blog.quintoapp.com *FREE* shipping on qualifying offers. Discusses the orbit, atmosphere, rings, moons, surface features, exploration, and other aspects of the planet Saturn.*

Saturn is the furthest planet from Earth that can be seen without the help of a telescope. The beautiful golden planet with the rings is Saturn. However, no one knew that Saturn had rings until when Galileo Galilei first looked at the planet with his telescope. How much would you weigh on Saturn? Because Saturn is bigger than the Earth, you would weigh more on Saturn than you do here. If you weigh 70 32 kg pounds on Earth, you would weigh Not as much as you thought, right? The Planet In many ways, Saturn is similar to Jupiter, but it is much smaller. It is the second largest planet in our Solar System and it is a gas giant like Jupiter. The atmosphere turns into liquid until it becomes a giant ocean of liquid chemicals. Saturn is the least dense planet in our Solar System. It consists of mostly hydrogen and helium. These gases are the two lightest elements in the universe. Thus Saturn is the lightest planet that we know of. And because Saturn is so light, it does not have as much gravity. This is because the planet is mostly hydrogen and helium, two gases. Saturn is a lightweight planet and it spins very fast. Thus, Saturn is not perfectly round like most of the other planets. Like Jupiter, Saturn is wider in the middle and more narrow near its top and bottom. A year on Saturn lasts 29 Earth years. Imagine if that was your summer vacation! Summers on Earth are hot and sunny. The Rings Saturn is most well-known for its rings. However, it is not the only planet with rings. Jupiter, Uranus, and Neptune also have rings. Saturn is a favorite object for many observers. Its beautiful rings are, miles wide approx, km. The rings are not solid but rather made up of particles of ice, dust, and rocks. The gravity of these moons also cause the gaps that we see in between the rings. In they were at their brightest ever! Titan is larger than the planet Mercury. Some of the other moons are named for other Greek gods and muses. Saturn Mythology Saturn was the name of the Roman god of agriculture, liberation, and time. He is the son of Uranus and the father of Jupiter. Saturn overthrew his father to become king of the gods. Later he was then overthrown himself by his son Jupiter.

Chapter 7 : Bad Astronomy | No, thatâ€™s *NOT* the last photo of Saturn from Cassini | SYFY WIRE

If you want to find the planet Saturn in the sky this weekend, but aren't sure where to look, this guide should help you. Saturn is visible all night long at the moment and is quite easy to find.

Chapter 8 : Viewing Saturn Guide: The Planet, Rings and Moons | Sky & Telescope

To find Saturn in, look for the constellation Scorpius and bright Antares! Throughout, Saturn is in the vicinity of Antares, the brightest star in the constellation Scorpius the Scorpion.

Chapter 9 : How to find Saturn in the Sky this Weekend - Universe Today

Because I know Saturn better now than I ever have, and that the same is true for so many others like me, like you, like everyone who chooses to wonder, everywhere on Earth. And for that, for that, I thank you.