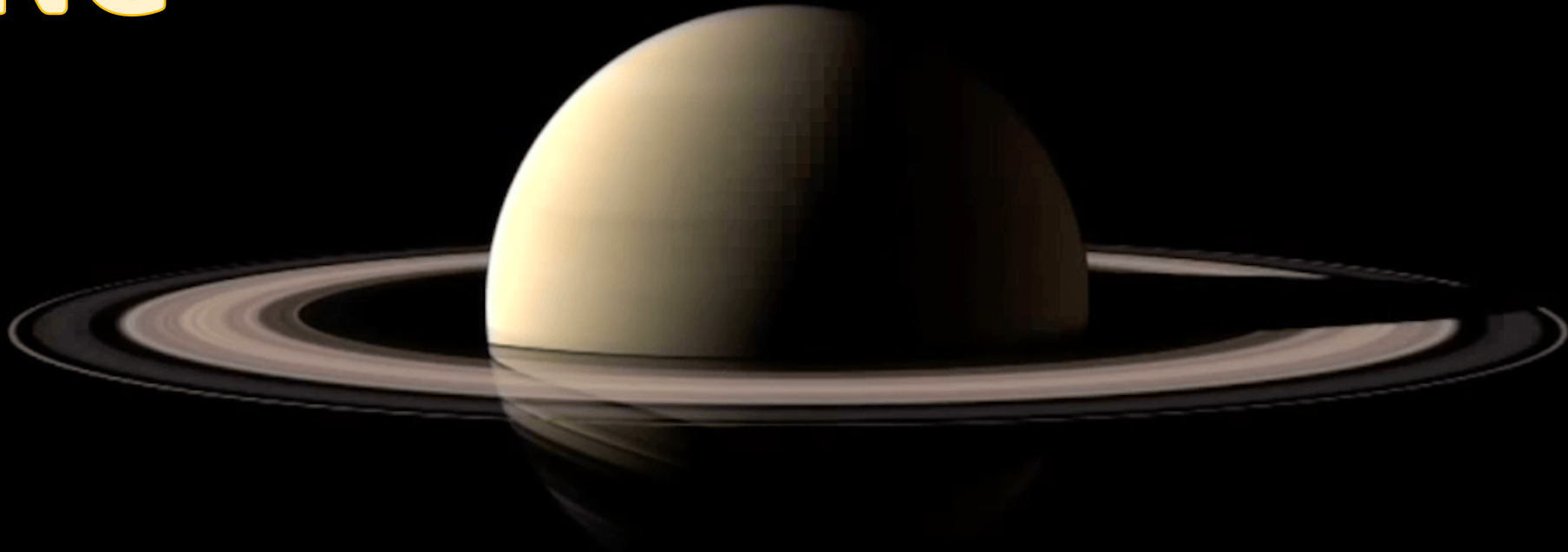


SATURN RISING



SATURN

6th Planet from our Sun



SATURN RISING

Saturn's Moons

Saturn has over 285 currently confirmed moons, but we can only see 7 of them through regular Earth based amateur telescopes.

SATURN'S MOONS

Sizes in Diameters

Saturn = 74,900 miles

Titan = 3,200 miles

Rhea = 950 miles

Iapetus = 913 miles

Dione = 698 miles

Tethys = 660 miles

Enceladus = 313 miles

Mimas = 246 miles

SATURN

Size

74,900 miles in diameter

9x the diameter of the Earth
across the equator

72,400 miles pole-to-pole

8x the diameter of the Earth
from North Pole to South Pole





the **NOW**

SATURN RISING

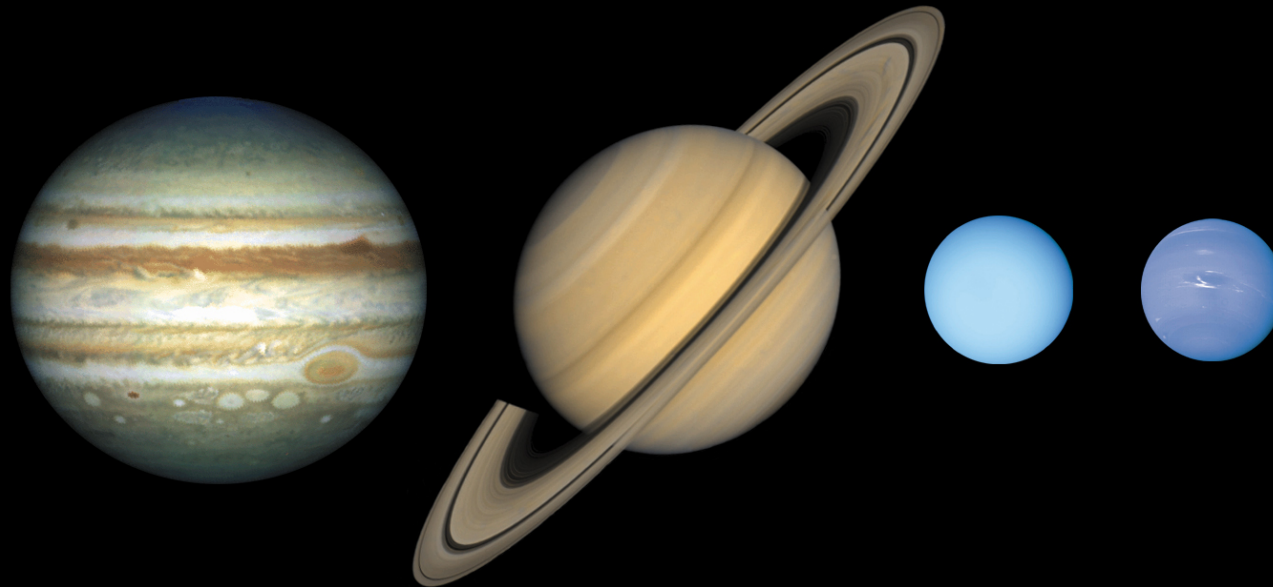
11:01pm tonight

- Each day it rises about 4 minutes earlier than the previous night.
- Each week it rises about 28 minutes earlier.
(just think of it as $\frac{1}{2}$ hour earlier from week to week)

SATURN

A Jovian Planet

Comes from Roman Mythology
means “like the god Jove or Jupiter”
Like Jupiter



SATURN's

ORBIT

It takes **29.5 Earth years** for Saturn to travel once around the Sun



SATURN's

ROTATIONAL PERIOD?

It's really easy to determine the rotational period of the rocky planets. Just pick a spot and see how long it takes to come full circle.

But with planets made up of mostly gas, everything you can see moves...

SATURN's ROTATIONAL PERIOD?

With no better method available, the Voyager missions detected a radio signal associated with its magnetic field from the interior of Saturn.

So they used that signal to determine the rotational period of 10 hours 39 minutes.

However, when Cassini detected the same radio signal two decades later, the period ended up being 6 minutes longer?

SATURN's

ROTATIONAL PERIOD?

Finally, a method was developed by looking at the “bulge” of the equator of Saturn as it relates to its mass and its gravity field.

Using this method, the rotational period of Saturn has now been determined to be

10 hours and 33 minutes long.

SATURN's

TILT & SEASONS

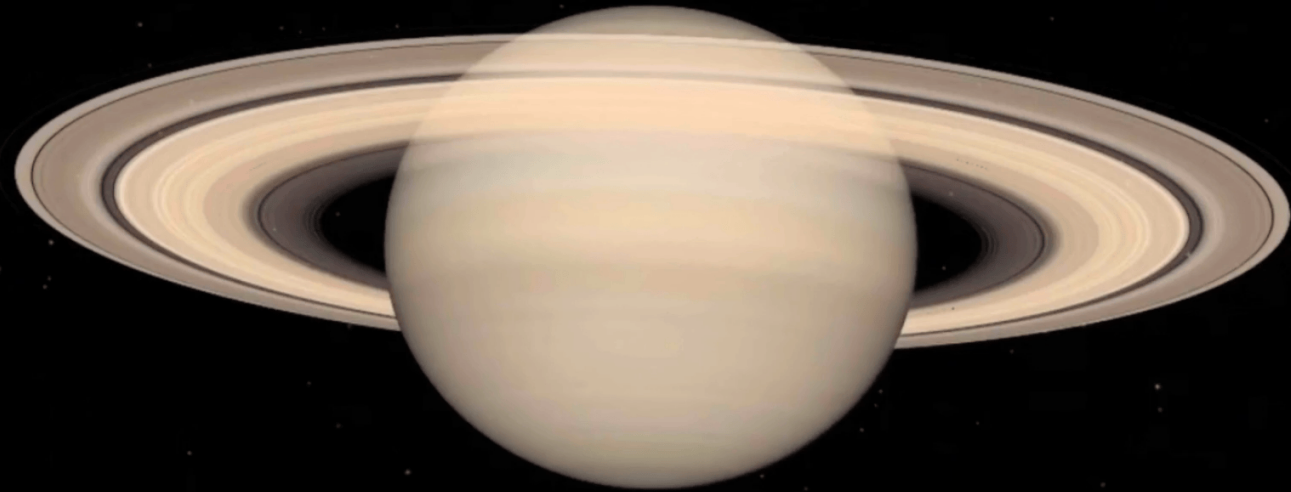
Saturn's tilt is about 27° on its axis.

This means that Saturn also has 4 seasons as it orbits around the Sun like we do on Earth.

The difference is Saturn's seasons last about 7.5 years each.

SATURN's

RINGS & TILT



SATURN's

SIZE, MASS, & DENSITY

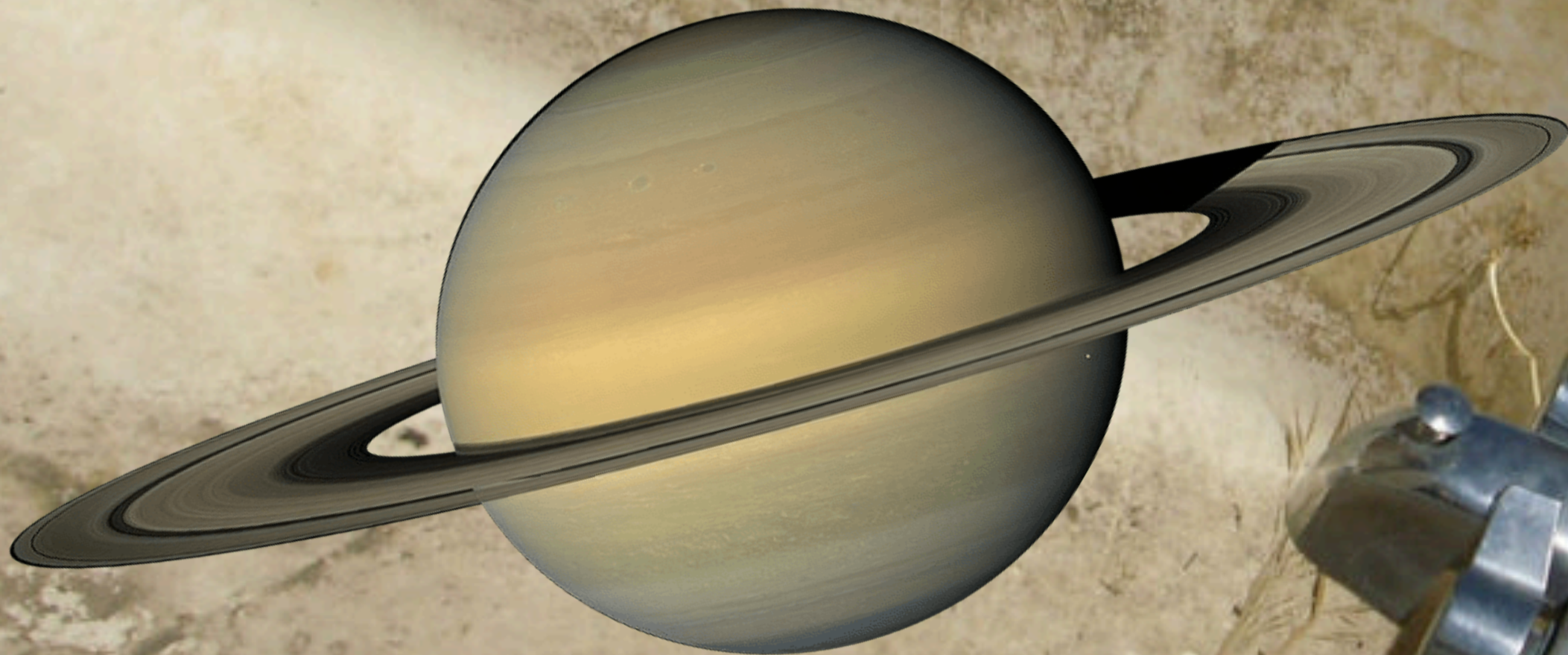
Only a little smaller than Jupiter,
But far less mass & less dense.



The density of liquid water is 1.0
Saturn's density is 0.7



It has been said that if you had a bathtub large enough to put Saturn in it, Saturn would float.



SATURN's

COMPOSITION

Mostly Hydrogen & Helium

75% Hydrogen

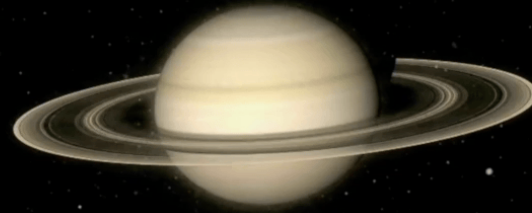
25% Helium

>1% Other heavier materials

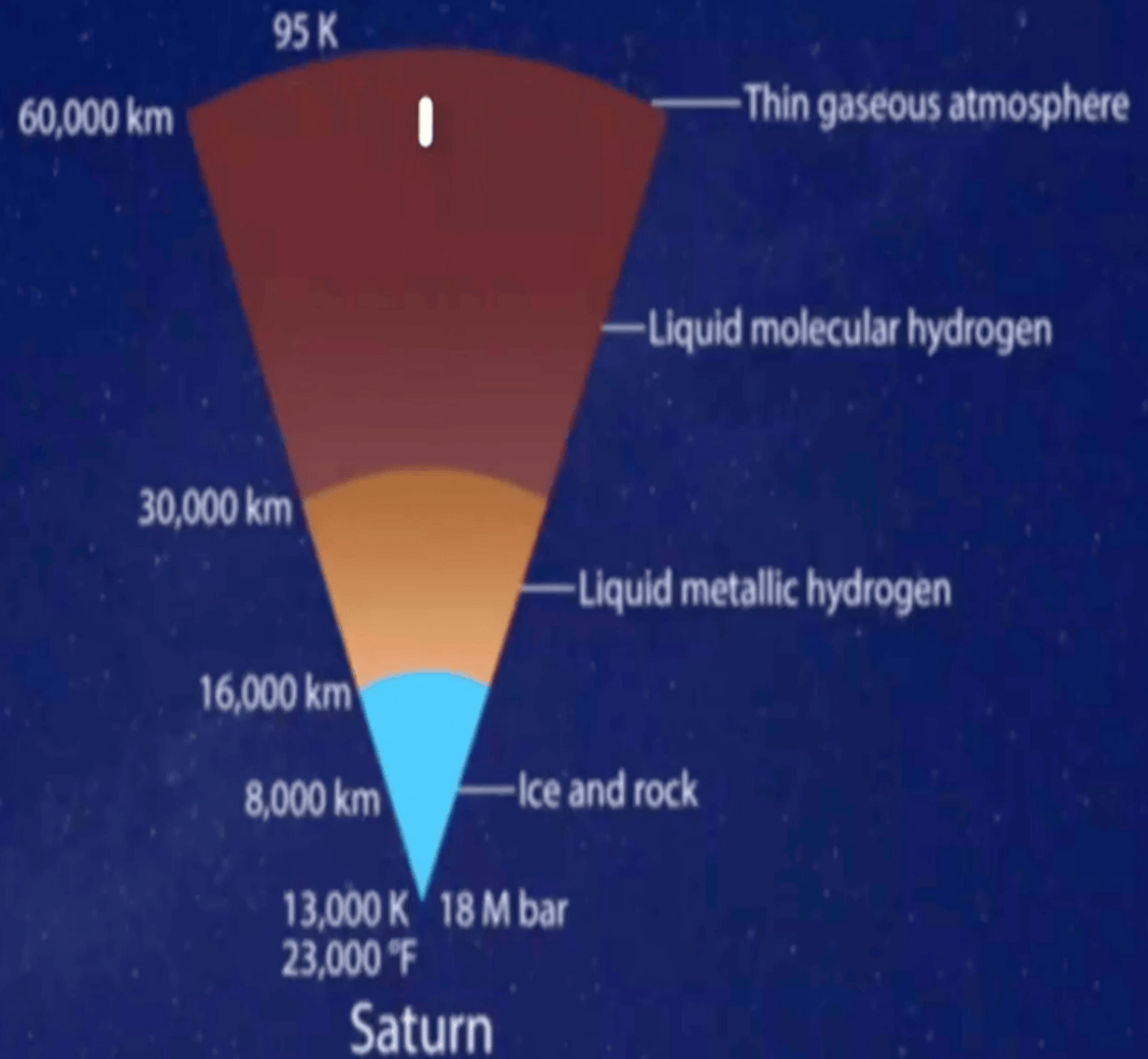
SATURN's

COLOR

Remnants of Methane & Ammonia
give Saturn a sandy, yellowish color



SATURN LAYERS



PLANETARY RINGS

VERY FRAGILE

Planetary Rings are extremely fragile.

They are continually being pushed and tugged by gravitational forces of the various satellites (moons) orbiting the host planet as well as solar winds from our sun.

Because of their fragility, planetary rings can only live 10's of millions of years at most.

PLANETARY RINGS

A SECULAR PROBLEM

Our planets are estimated by secular scientist to be about 4.6 Billion years old.

PLANETARY RINGS

A SECULAR PROBLEM

Doing the math, planetary rings have only been around about 1% of the entire age of the solar system.

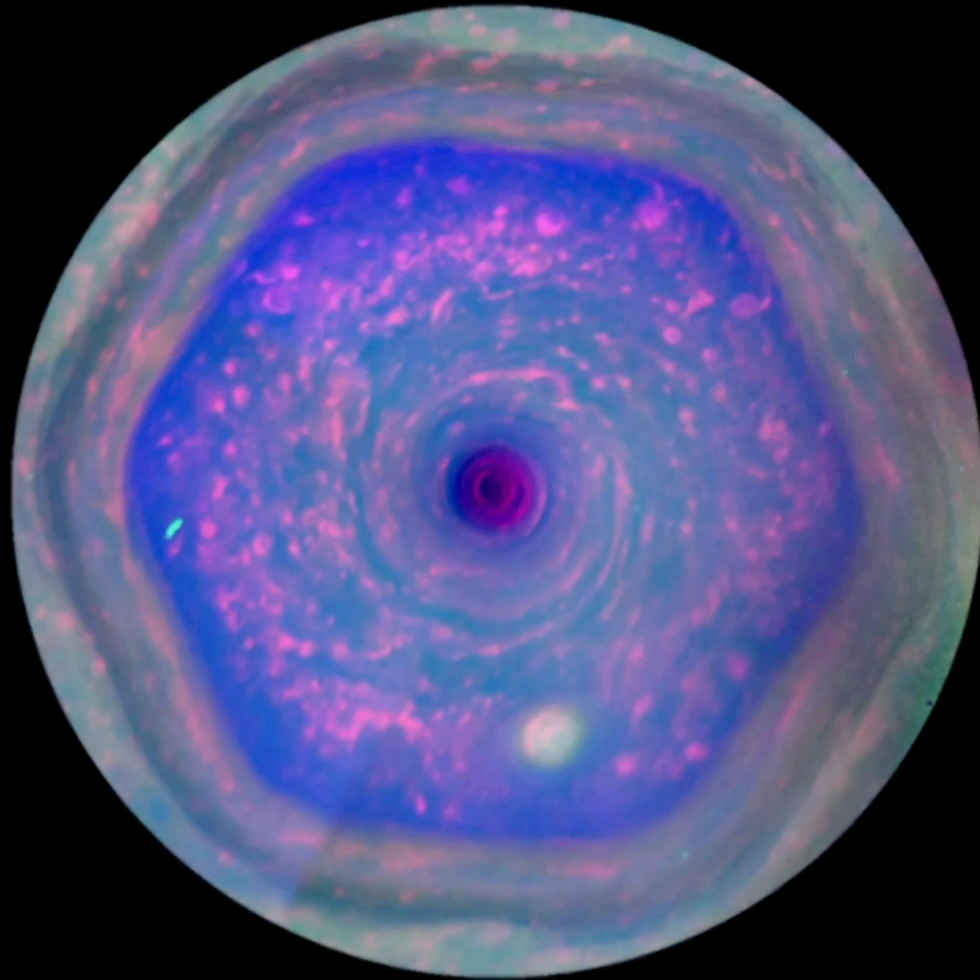
PLANETARY RINGS

ODDS

What is the probability that we just so happen to have life on Earth at the same time that the four gas giants in our solar system happen to have Rings?!

SATURN'S POLAR REGION

WHAT THE HEXAGON?!



WHAT GIVES?

HEATING PROBLEM

Saturn radiates out more heat from inside than it receives from the Sun.

This tells us that it cannot have lasted billions of years. It looks much younger.

Viewing or Imaging

Equipment

Good – Binoculars

Better – Telescope

Best – Catadioptric Telescope

Optical Designs

Refractor



$f/6$ or less

Reflector



$f/7 - f/9$

Catadioptric



$f/10$ or more



Why Catadioptric?

Best for Planets

Longest Focal Length = More Power/Zoom

Wide Aperture = Sharper Image / Detail

Smaller Focal Ratio = Reduce Brightness



















Parker Ing
Astrophotography

Horsehead Nebula & Flame Nebula
March 23, 2025
Plano, Texas







Parker Eng
Astrophotography
Total Lunar Eclipse
March 14, 2025



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Astrophotography
Total Lunar Eclipse
March 14, 2025
"One Hour After Totality"



COMET C/2023 A3 TSUCHINSHAN-ATLAS
Prestonwood Baptist Church
Plano, Texas
October 13, 2024



Parker Eng
Astrophotography



Prestonwood Baptist Church
Plano, Texas
October 13, 2024



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Astrophotography



Jupiter

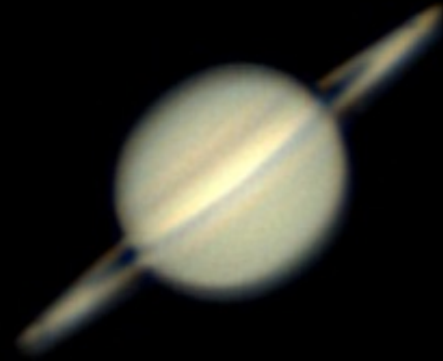
September 26, 2024



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Saturn

September 17, 2024



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Astrophotography
April 8, 2024



Parker Eng
Astrophotography
April 8, 2024

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Astrophotography
August 28, 2023

