

## Program Toolkit

# Star Gazing Party

Have a stellar astronomy experience with your group! This program is designed for Brownies, Juniors, and Cadettes, but can easily be tailored to other levels as well. It can also be easily turned into a badge-earning event or an overnight event! I have found the most success with this event where the activities are laid out and the Girl Scouts select which ones to do, but you also may have everyone do all the activities together. Girl Scouts will get to learn about the constellations, learn a bit about the planets, and do some crafts.

**Time:** 3-3.5 hours, but feel free to pick and choose which activities you want to do!

### Steps Overview:

- Learn About the **Constellations**
- Make your own **Star Wheel**
- Go on a **Planet Scavenger Hunt**
- **Origami:** Wish Upon a Star
- **Gaze at the Stars**

### Materials Needed:

#### Activity #1: Constellations

- Constellation stories from various cultures (attached)
- [Black paper](#)
- [Star stickers](#)
- [Gold metallic markers](#)

#### Activity #2: Star Wheels

- Scissors
- Single hole punch
- Star wheel papers (attached)
- Stapler

#### Activity #3: Planet Scavenger Hunt

- Planet info posters (attached)
- Scavenger hunt cards (attached)
- Pencils/writing utensils
- Optional: other posters or space objects

#### Activity #4: Star Origami

- [Long strips of paper](#)
- [Small jars or boxes](#)
- Fun decorative stickers
- Markers, glitter pens, etc.

#### Activity #5: Star Gazing

- The night sky
- Blankets, tarps, etc., for Girl Scouts to be comfortable
- Optional: glow sticks

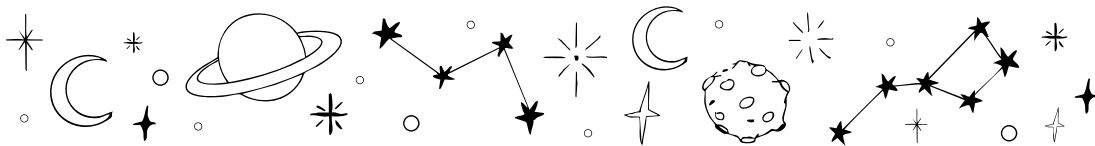
## Introduction

**Say:** Welcome to our Star Gazing Party! Today we are going to learn about the stars and also make new friends!

What do you know about the stars, the moon, or the planets? *Allow Girl Scouts to share with a neighbor some facts they know, and potentially share with the larger group.*

Today, we are going to be doing activities of all kinds to celebrate the stars before we star gaze once the sun goes down! Hopefully, by the end of the day you will be able to identify some constellations and know a bit more about the planets. Let's begin!

*Here is a good place to also provide info about where the bathrooms are, where the First Aider will be, and how the event will run, If they will be independently selecting their stations, let them know where everything is.*



## Activity #1: Constellations

- Say: Do any of you know any constellations? Are you able to find them in the Night Sky? We are going to hear a story about a constellation and how it ended up in the sky, and then make our own!

### Part 1: Story

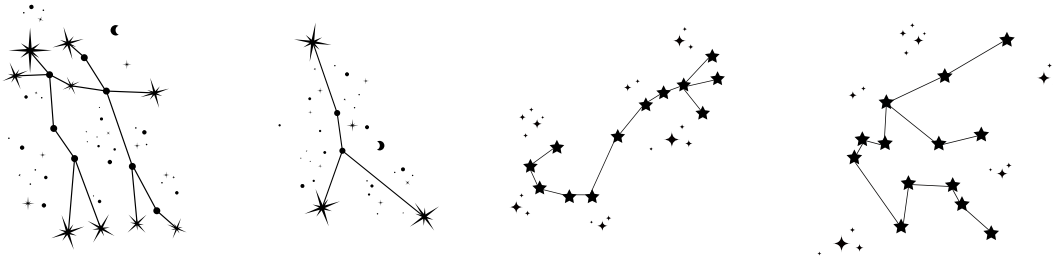
- Select one of the constellation stories from the end of this packet, or find another from a story book! Read it aloud to the Girl Scouts.
- Note: if Girl Scouts are independently navigating the stations, you may have the stories out for them to read on their own

### Part 2: Making a constellation

- Provide each Girl scout with a piece of black construction paper. Spread out the star stickers around the table.
- Girl Scouts will place star stickers randomly on their paper - likely around 10-15 stars each, but could be more!
- Once they have placed their stickers, have them "star gaze" at their stars and see what kinds of images they can see! When they have found one, have them connect the shape with a pencil first, and then go over it in the gold sharpie.

## Part 2: Making a constellation (continued)

- Girl Scouts should then come up with a name for their constellation and write it on the paper.
- Optional: on the back of the paper, have them write a short story of how their constellation ended up in the sky.



## Activity #2: Star Wheels

- Say: We are now going to make a tool to help us find constellations and stars as we star gaze this evening! We are going to make our own star wheels you will get to take home with you.
- Note: I recommend [watching this video familiarizing yourself with how the star wheels work](#) beforehand.

### Step 1: Cut out the pieces

- Give each Girl Scout both the star map and the wheel on separate sheets of paper.
- For the sky map, trim away the gray corners so you are left with a circle 8 inches across.
- For the outer sleeve, make sure you keep the large white rectangle at the bottom. Cut away the edges and the white oval in the middle.

### Step 2: Assemble the star wheel

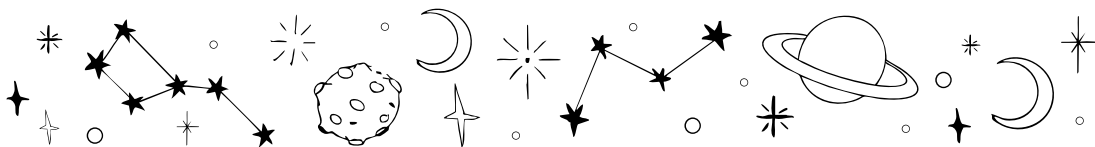
- Fold the white rectangle at the bottom of the outer sleeve so it's underneath the front.
- Staple the rectangle to the front at the short white lines on either side of the oval.
- Slip the circular sky map inside the pocket so it shows through the oval. That's it!

### Step 3: Using the Wheel

- Pick the date and hour you want to observe, and set the Star Wheel so this date (on the rim of the circular disk) matches the time indicated along the edge of the outer sleeve. Use white hours when standard time is in effect and orange hours when clocks are set for daylight-saving (summer) time. The Star Wheel's large oval shows the whole sky, and the oval's curved edge represents the horizon you're facing. Once outside, hold the Star Wheel out in front of you and look at the yellow "Facing" labels around the oval. Turn the entire wheel so that the yellow label for the direction you're facing is on the bottom, with the lettering right-side up. If you're unsure of your directions, just remember where the Sun sets; that's west.

### Activity #3: Planet Scavenger Hunt

- Before the program, place all of the printed out planets around the site/room. Kids may think this is just fun decor, but it will also be for an activity!
  - Note: I also tend to print out pictures of other space-things, so that kids have to hunt a bit more for the info in the scavenger hunt.
- Give each Girl Scout a scavenger hunt paper and a writing utensil
  - You may have Girl Scouts complete this individually or in teams! If you have youngers, in teams with older Girl Scouts would be a great idea since there is reading required.
- Inform the Girl Scouts clearly of where the boundaries of the scavenger hunt are, and they may begin!
- When they are done, check their answers, and give them a small prize! Stickers or a temporary tattoo are always a hit.



### Activity #4: Origami Wishing On Stars

#### Step 1: Decorate the jars

- Hand out a small jar/box to each Girl Scout.
- Spread the stickers, markers, glitter pens, etc., around the tables.
- Give them some time to decorate the boxes however they'd like, and tell them they are going to be putting wishes inside!

#### Step 2: Make wishes

- Give each Girl Scout about 10-15 strips of paper and a writing utensil
- Have them write down wishes they have for themselves, their lives, and the world on the stars.
  - Ex: I wish to become an astronaut, etc.

#### Step 3: Fold the stars

- Following the tutorial to the right, and the printable instructions (attached), have the kids fold each of their strips of paper into little paper stars!
- Place all the stars in the jars for the kids to take home.

**Video tutorial here!**



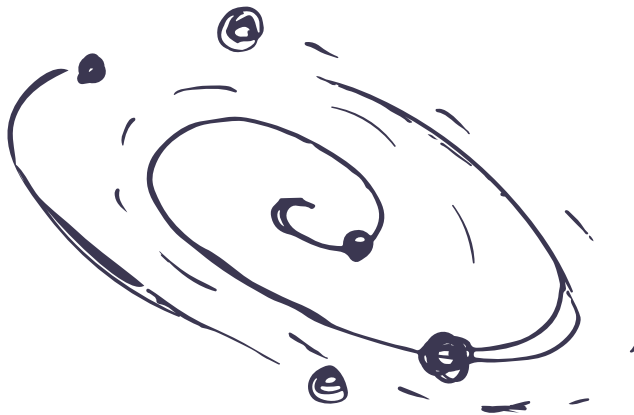
## Activity #5: Star Gazing

- A very simple last step: have everyone get comfortable outside once the sun goes down, and look at the stars!
- Pass back out their star wheels if you'd like and see how many stars you all can identify
- You may play some calming music in the background or read a story aloud to the kids.
- If it is dark, have everyone wear a glowstick bracelet so you can easily locate everyone. I typically have the kids wear bracelets and the adults wear a necklace so kids can easily locate an adult if needed.



## Closing

**Say:** I hope you all had fun learning all about the stars and the planets! The world is amazing, so remember to take some time to admire its beauty every now and then. Thank you for coming!



[Supporting Materials on following pages](#)

# The Legend of Yacana

## Based on Incan Stories of the Sky

The llama is one of the most important animals for the Incas. Its silhouette appears in the dark areas between the stars. For this reason llamas with black fur were very important in the Inca religion. Two very bright stars in the constellation of Centauri (alpha and beta) represent the black Llama's eyes.

The Inca legend tells us that Yacana (the llama) was wandering with her baby along a river that crossed the entire sky (the Milky Way). The more she walked, the blacker she got. Her baby accompanied her throughout the sky. When the baby became hungry, Yacana fed it. When Yacana woke up, it became daytime. It is said that the man who finds himself in a place where Yacana has fed her baby will have good luck for the rest of his days.

But Yacana was just and treated everyone equally. She would not give happiness merely to one man or one woman. At night, when nobody was looking, she used to go and drink water from the oceans. She drank the water of pain, the water of sadness, the water of thirst and hunger. She drank the water of the tragedy of humankind and prevented the seas from overflowing and flooding the earth.



# Orion the Giant

## Story from Greek Mythology

A long time ago, a giant named Orion lived in Greece. He spent his life hunting with his dogs. He lived in a large cave close to another cave where a giant named Atlante lived with his wife and his seven daughters, the Pleiades.

One day Orion saw Merope, one of the Pleiades. She was sunbathing. Orion was overwhelmed by Merope's beauty and fell in love with her. Merope saw him and fell in love too. But Atlante had other plans for Merope. He planned to marry her to the son of a very rich giant who lived far away in another forest.

One day Atlante saw Orion and Merope out walking together and their love made him furious. He prepared a potion that he gave Orion. Atlante wanted to make Orion blind so that he could not see Merope anymore. Orion drank the mixture and lost his sight. Atlante told him "You will not recover your sight until you find the light of dawn. Walk until you find it. Then, when you return, you will have to fight all of the animals you meet on the way."

The blind Orion could not travel alone so he sought the help of a young boy. Perched on Orion's shoulders, the boy led him East until they found beautiful colours of the light of dawn. Then Orion was able to see again.

On the journey home, Orion confronted a hare and a bull. He defeated both, but when he was close to his cave a scorpion stung him in the foot and left its poisonous sting stuck in his skin. Feeling that he was going to die, Orion asked Zeus, the father of all gods, to transform him into a constellation of stars so he could see his beloved Merope. Zeus kindly fulfilled Orion's wish. When Merope found out, she and her sisters asked to be close to Orion. Zeus obliged and turned them into stars too. He did the same to Orion's dogs and the animals that had crossed the giant's path on the way back from the seeking the light of dawn.

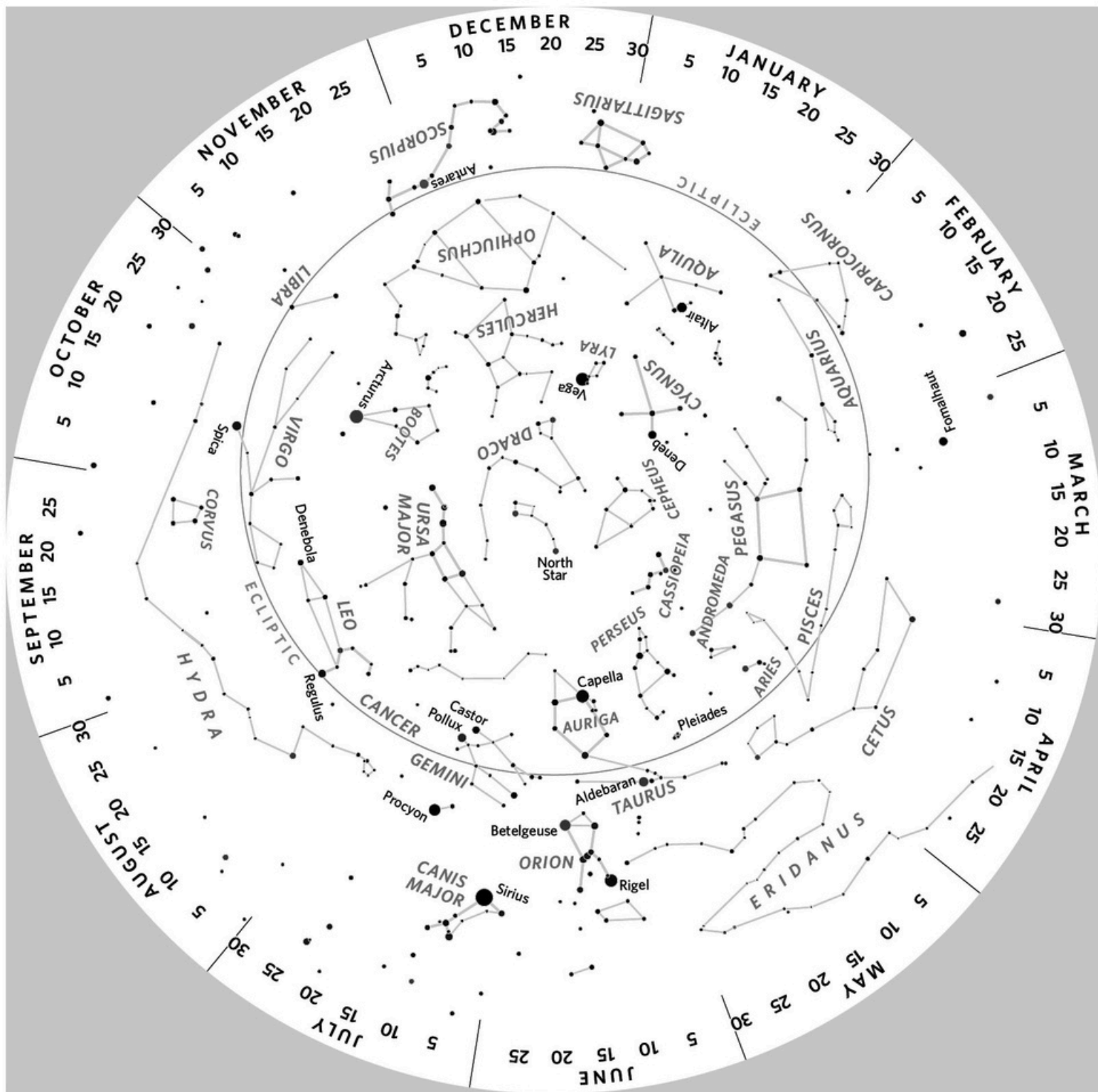
Since that time, on calm winter nights, it is possible see Orion with his drawn bow, his two dogs, the rabbit and the bull. Close to them, the Pleiades watch the giant. What never appears in the night sky at the same time as Orion is the constellation of the Scorpion, Orion's enemy. When one is visible, the other is not. In the sky these eternal enemies will watch over us forever.



These stories and illustrations are from the collection *Tales of the Stars*, edited by Rosa M. Ros, and translated by Chris Gladwin and Alina Hirschmann. Illustrations are by Maria Vidal.

Other resources:

- [Star Stories: Constellation Stories from Around the World](#)
- [Star Stories: Constellations and People](#)



More info & instructions here!

# STAR WHEEL

Standard time  
Daylight-saving time

Facing North

Facing East

Facing West

HORIZON

HORIZON

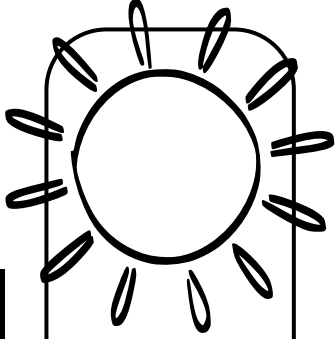
Facing South

**SKY**  
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# The Planets



## **The Sun**

How far from the Earth is the sun?

What's a fun fact about the sun you learned?

## **Mercury**

How far from the Earth is Mercury?

What's a fun fact about Mercury you learned?

## **Venus**

How far from the Earth is Venus?

What's a fun fact about the sun you learned?



## **Earth**

How far from the **sun** is **Earth**?

What's a fun fact about Earth you learned?

## **Mars**

How far from the Earth is Mars?

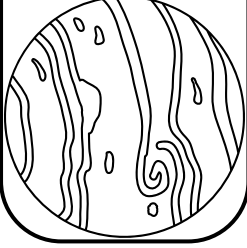
What's a fun fact about Mars you learned?



## **Jupiter**

How far from the Earth is Jupiter?

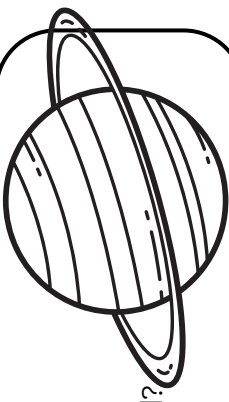
What's a fun fact about Jupiter you learned?



## **Saturn**

How far from the Earth is Saturn?

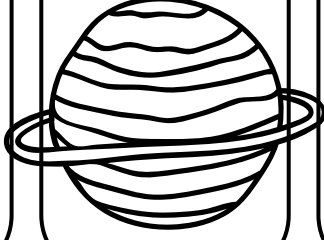
What's a fun fact about Saturn you learned?



## **Uranus**

How far from the Earth is Uranus?

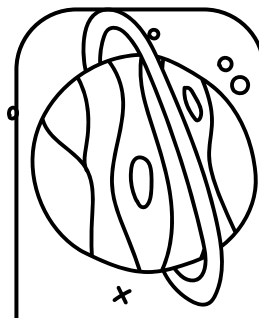
What's a fun fact about Uranus you learned?



## **Neptune**

How far from the Earth is Neptune?

What's a fun fact about Neptune you learned?

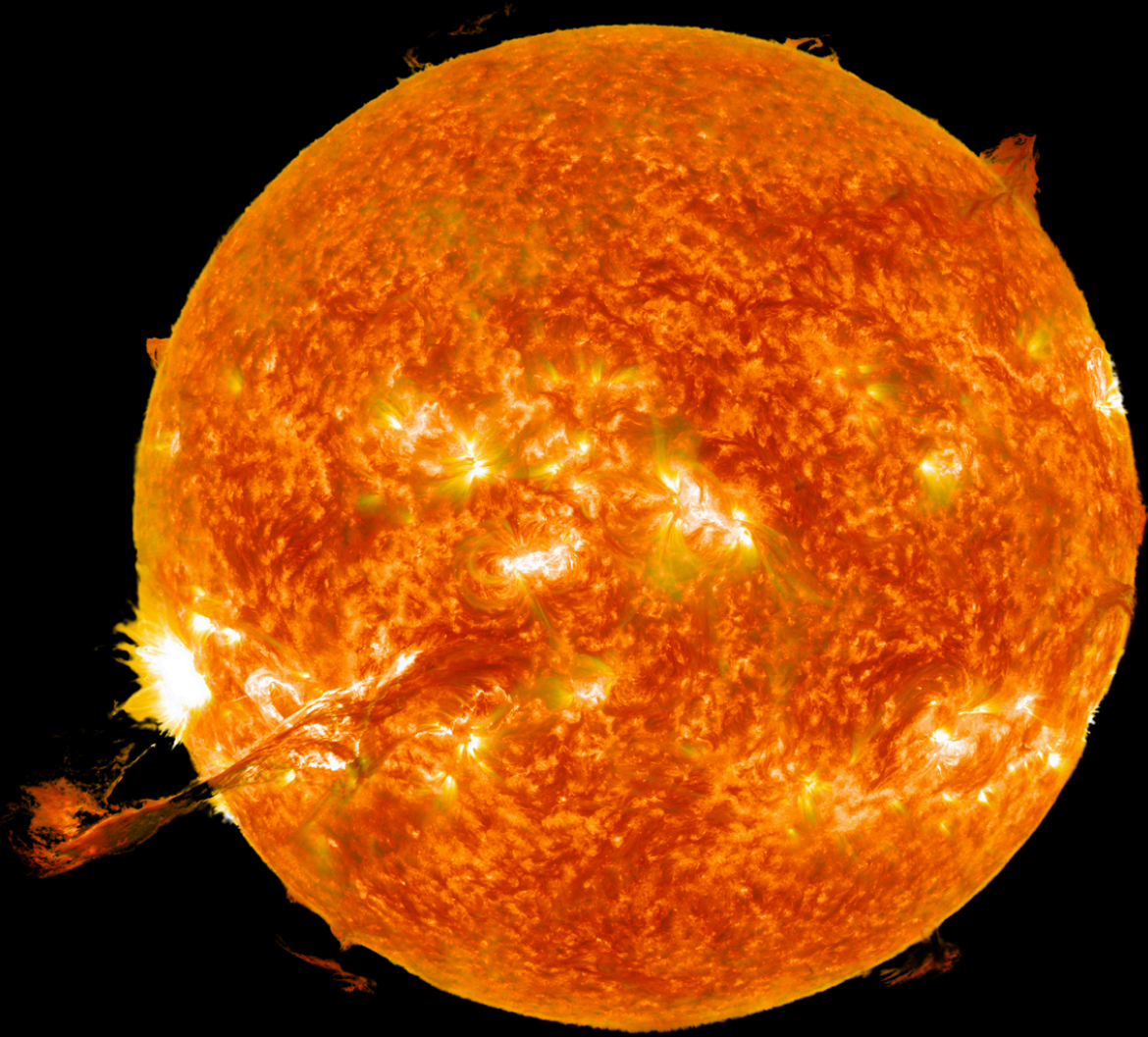


## **Pluto**

How far from the Earth is Pluto?

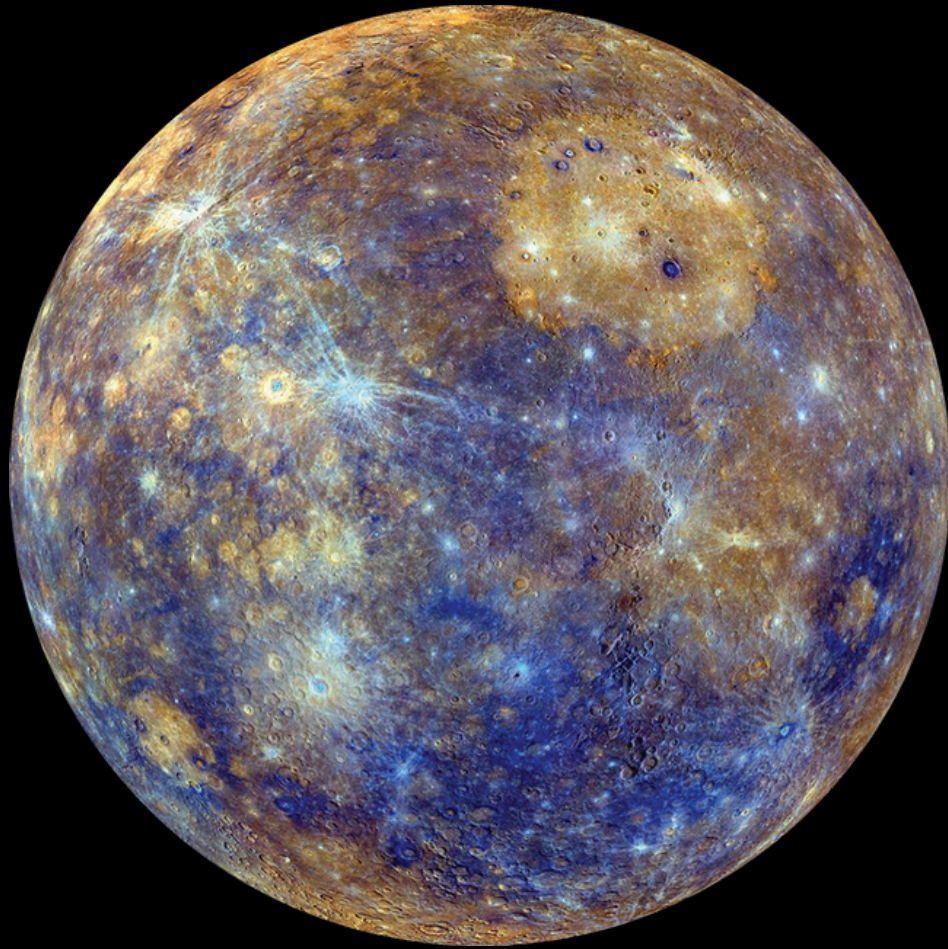
What's a fun fact about Pluto you learned?





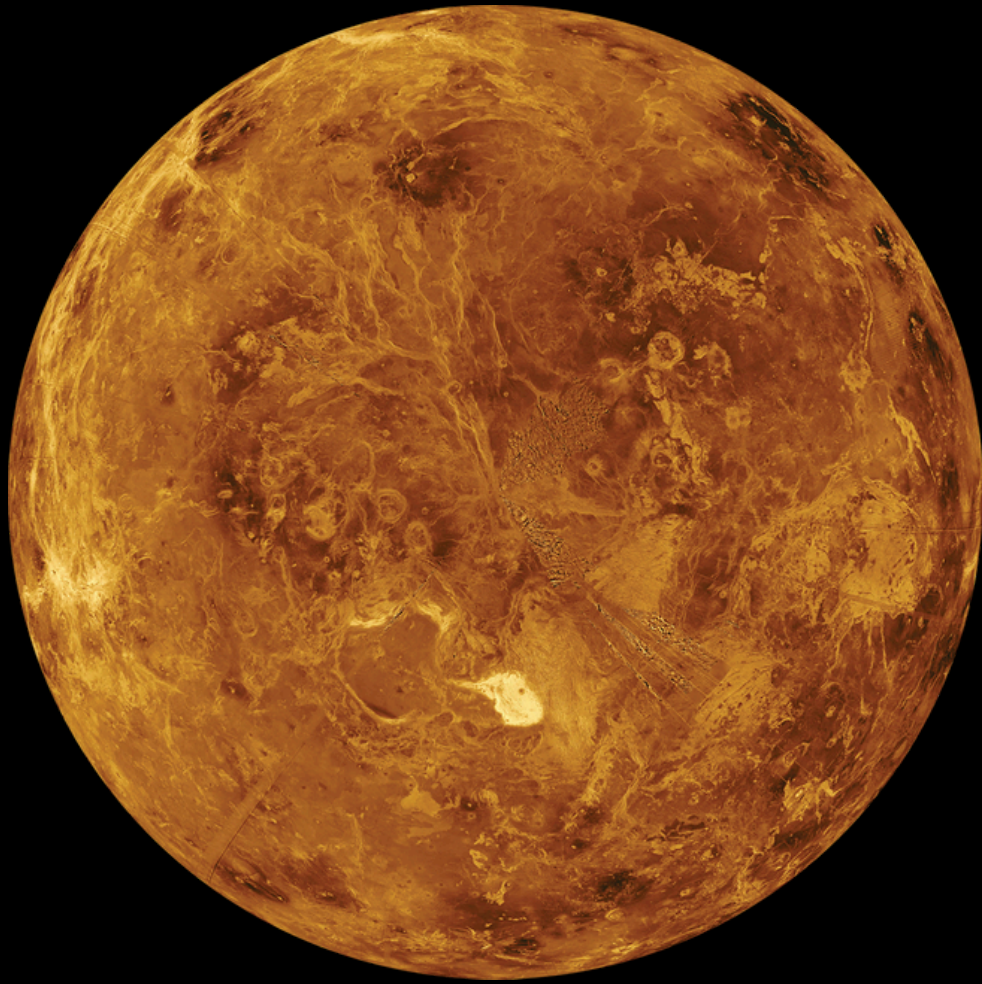
# The Sun!

- The sun is not a planet, but the star our solar system orbits (circles) around
- If you opened the sun up like an Easter egg, you could fit 1.3 million Earths inside it!
- The sun is 93.8 million miles away from Earth
- The sun is massive - it alone contains 99.8% of our solar system's mass



# Mercury

- Mercury is the smallest planet in our solar system - it's about the size of the Moon
- From the surface of Mercury, the sun appears 3 times as large as it does on Earth, and the light is 7 times brighter
- Mercury is 48 million miles away from earth and 38.3 miles away from the sun



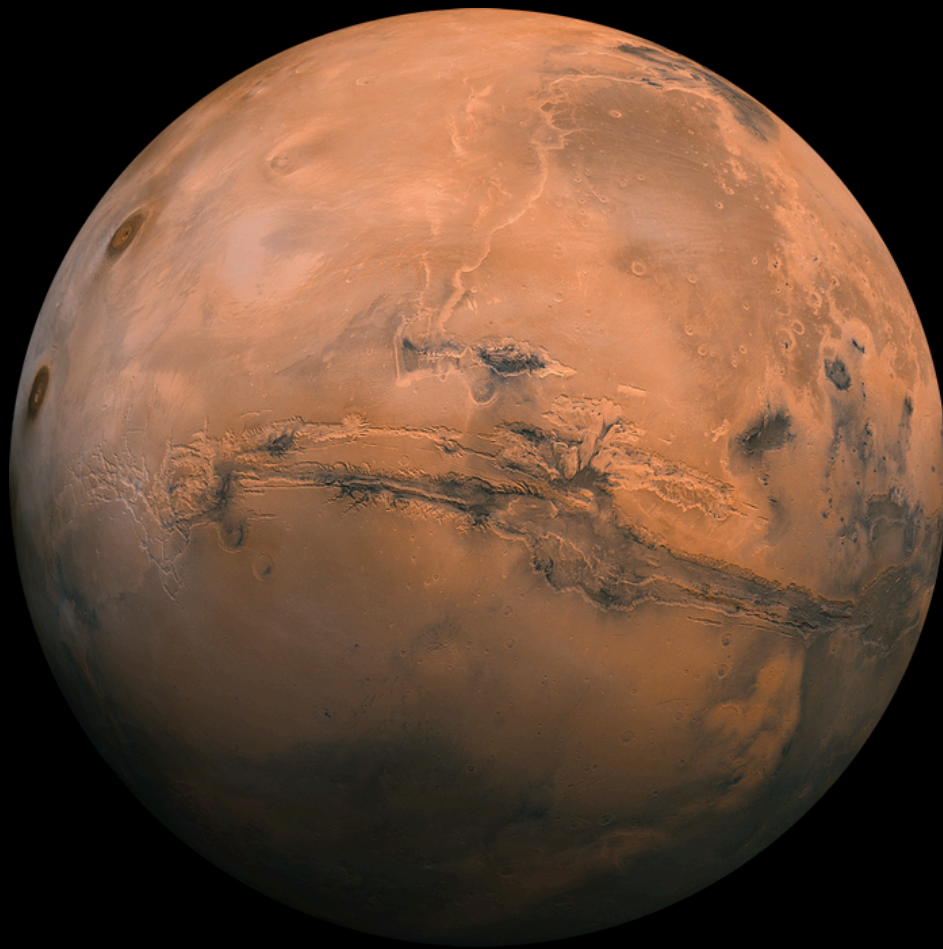
# Venus

- Venus is the hottest planet in the solar system - it's surface is about 880°F!
- Venus rotates in the opposite direction of Earth - so the sun rises in the west, and sets in the east
- Venus is about 47.2 million miles away from earth, and 67.5 away from the sun
- Venus has over 80,000 volcanoes on its surface



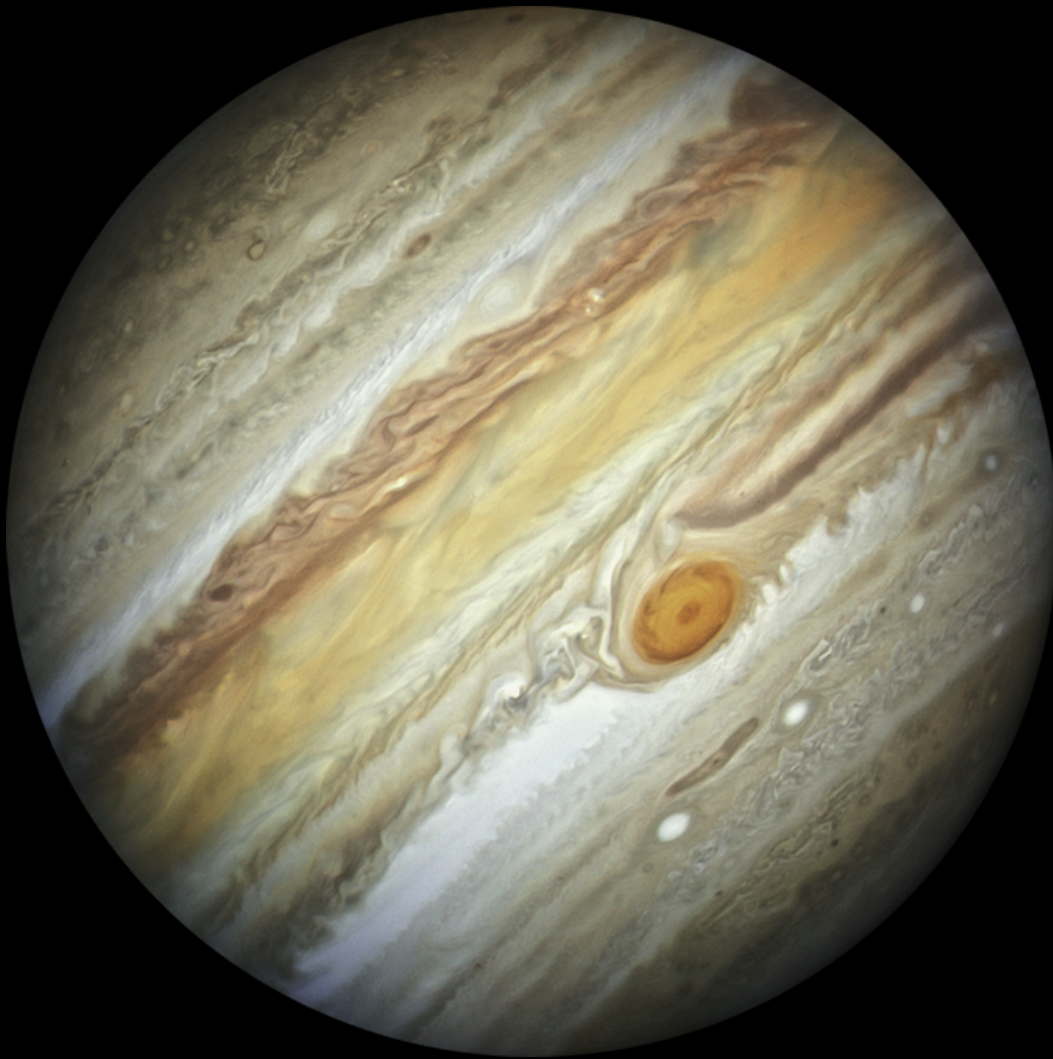
# Earth

- This is where we are!
- We are 93 million miles away from the sun
- Earth is the only planet with liquid water on its surface  
- that's part of the reason why it is the only planet that can support life
- Earth is the only planet not named after a Greek or Roman god/goddess. The name comes from a Germanic word meaning "the ground"
- Earth is the only planet with just 1 moon



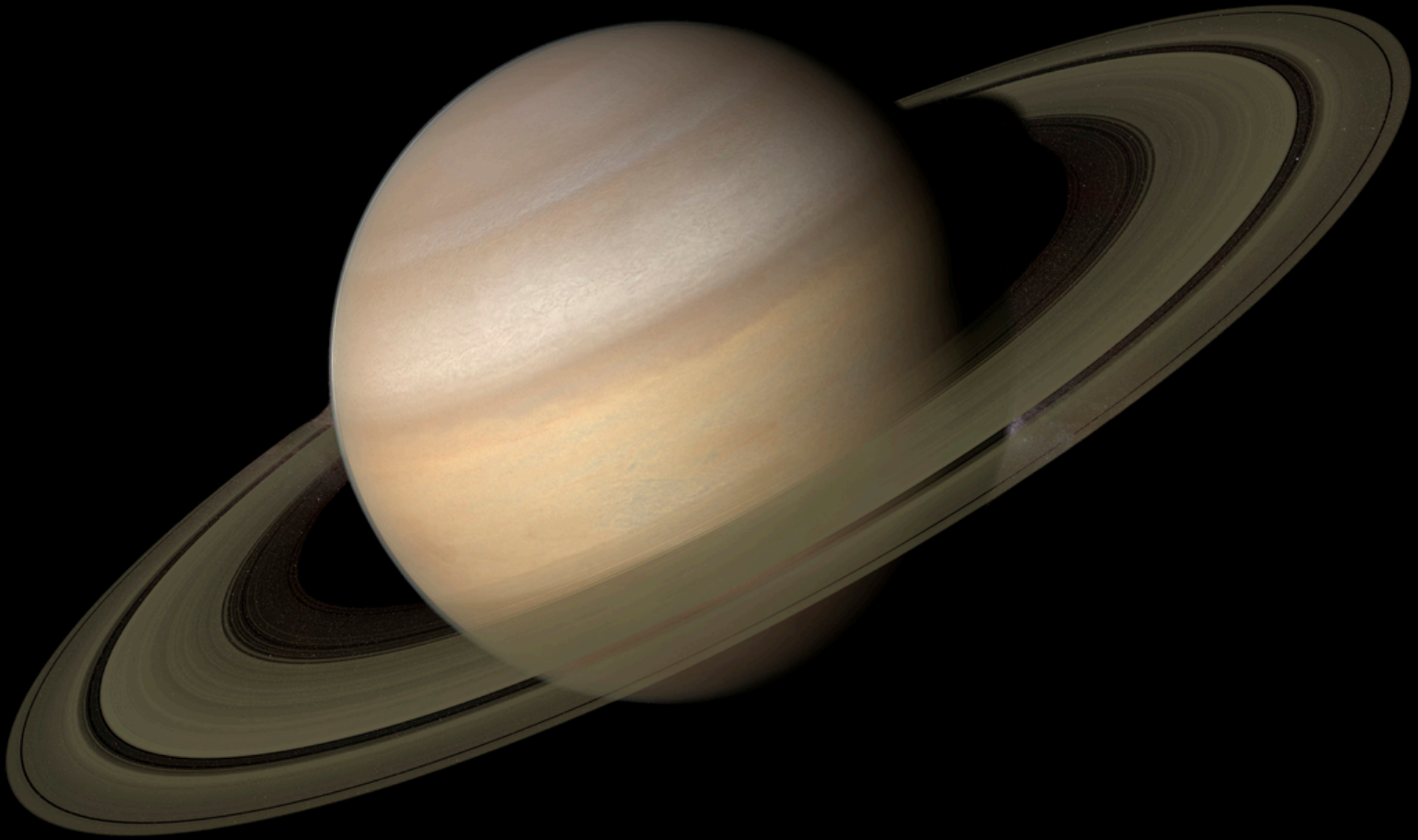
# Mars

- Mars is the most observed planet in our solar system (other than Earth), thanks to the Mars rovers we have sent there
- It is often called “the Red Planet” due to its red color. This is caused by iron on the surface that rusts over time
- Mars is 155.6 miles away from the sun, and 140 million miles away from Earth
- Scientists hypothesize (think) that life may have existed on Mars long long ago when it was wetter and warmer



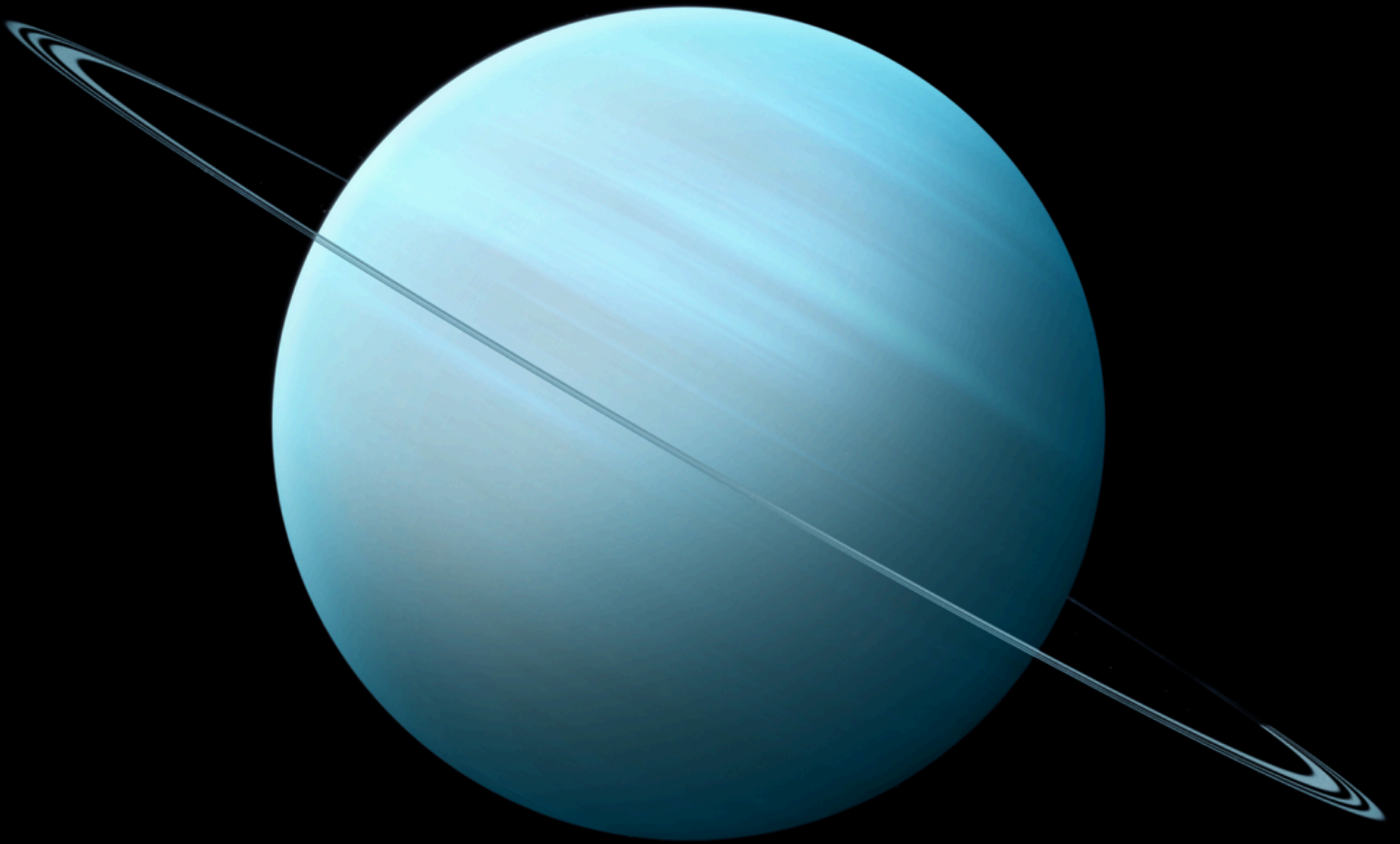
# Jupiter

- Jupiter is both the largest and oldest planet in the solar system. This is where it got its name from - Jupiter is the king of the gods in Roman mythology
- If you opened Jupiter like an Easter egg, about 1,000 Earths could fit inside!
- Jupiter is 476.2 miles from the Sun and 549.7 miles from the Earth
- Jupiter forms its own mini system, which many many moons! Its largest 4 moons were first observed by Galileo in 1610.



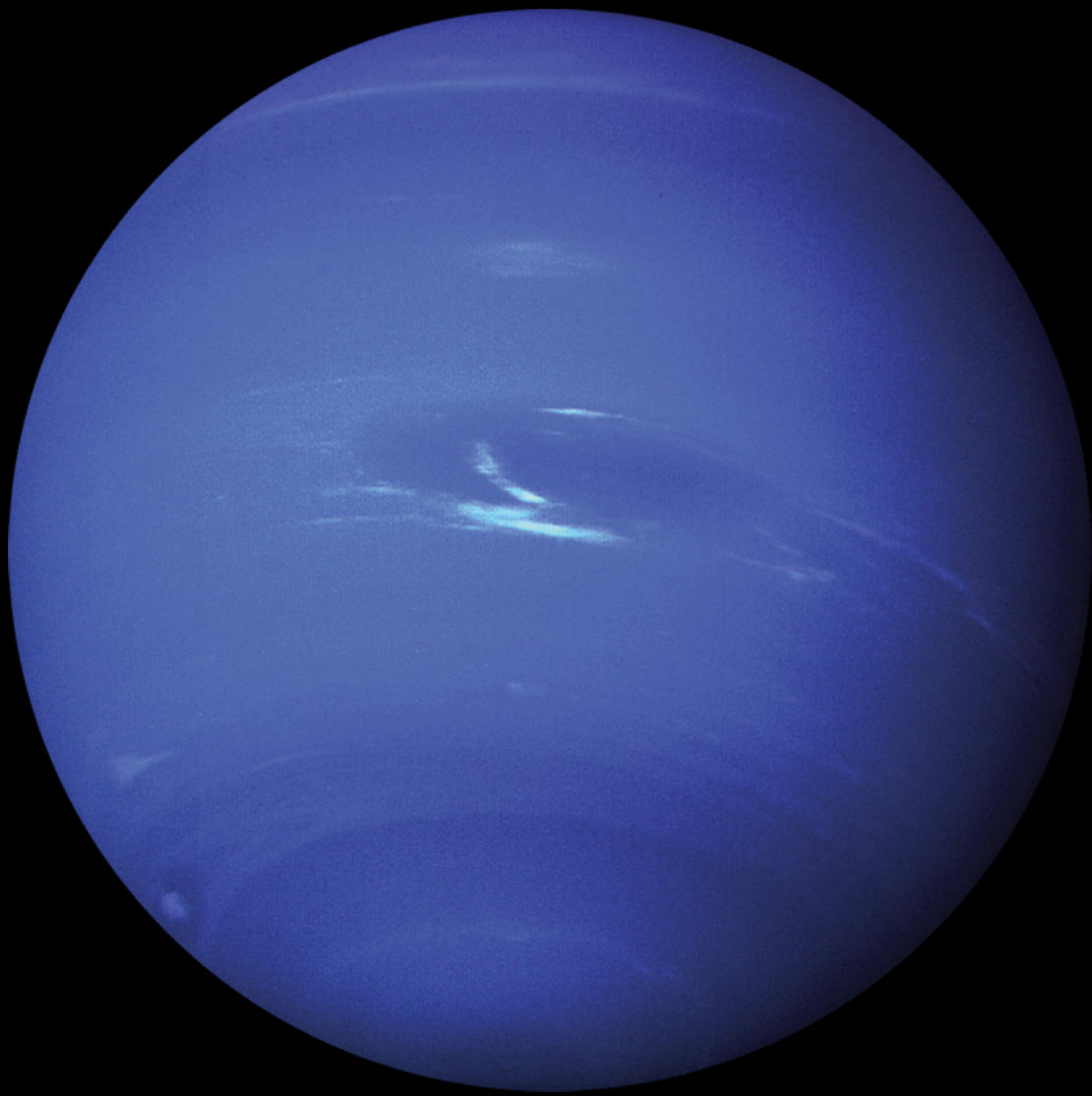
# Saturn

- Saturn is 746 million miles away from the Earth, and 887 million miles from the Sun
- Though Saturn itself cannot support life, two of its moons have internal oceans that could potentially support life
- Though other planets have rings, none have as many or have some as visible as Saturn's
- Saturn is the least dense planet in the solar system; if a bathtub large enough to contain it existed, Saturn would float right on top!



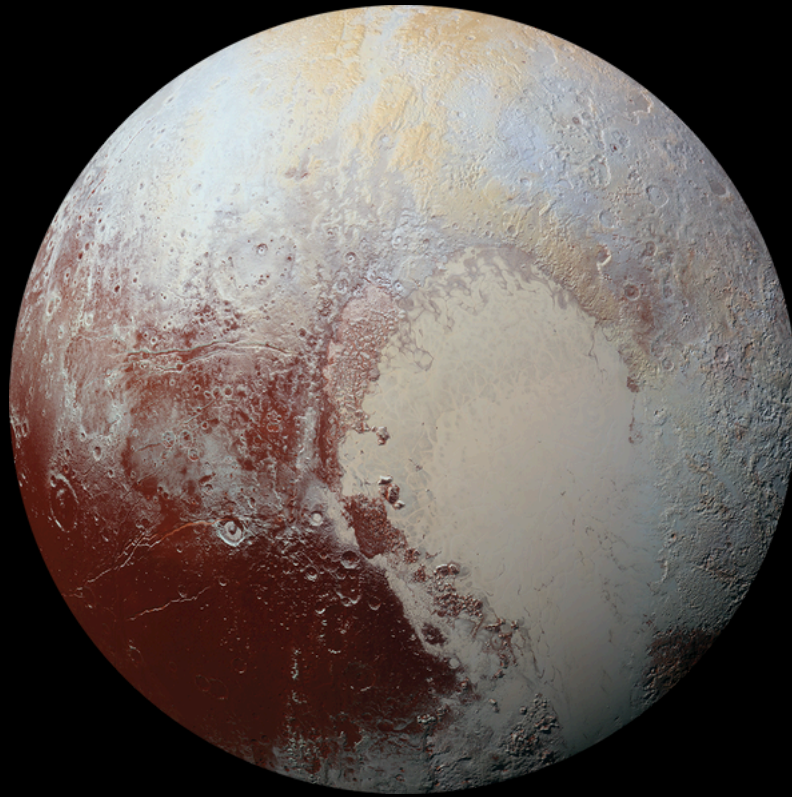
# Uranus

- Uranus is very cold and windy and is known as one of the ice giants
- It has 13 very faint rings and 28 moons
- Uranus is 1.8 billion miles from the Sun and 1.6 billion miles from the Earth
- Uranus is the only planet on a 90 degree axis. This means that it appears to orbit the sun like a rolling ball



# Neptune

- Neptune is 2.7 billion miles away from earth and 2.84 million miles from the Sun
- Neptune is so far away from the Sun that our light on earth is 900 times as bright!
- Along with Uranus, it is one of the ice giants in the solar system, and is composed of an icy surface
- Scientists hypothesize that there may be a super hot ocean underneath Neptune's surface

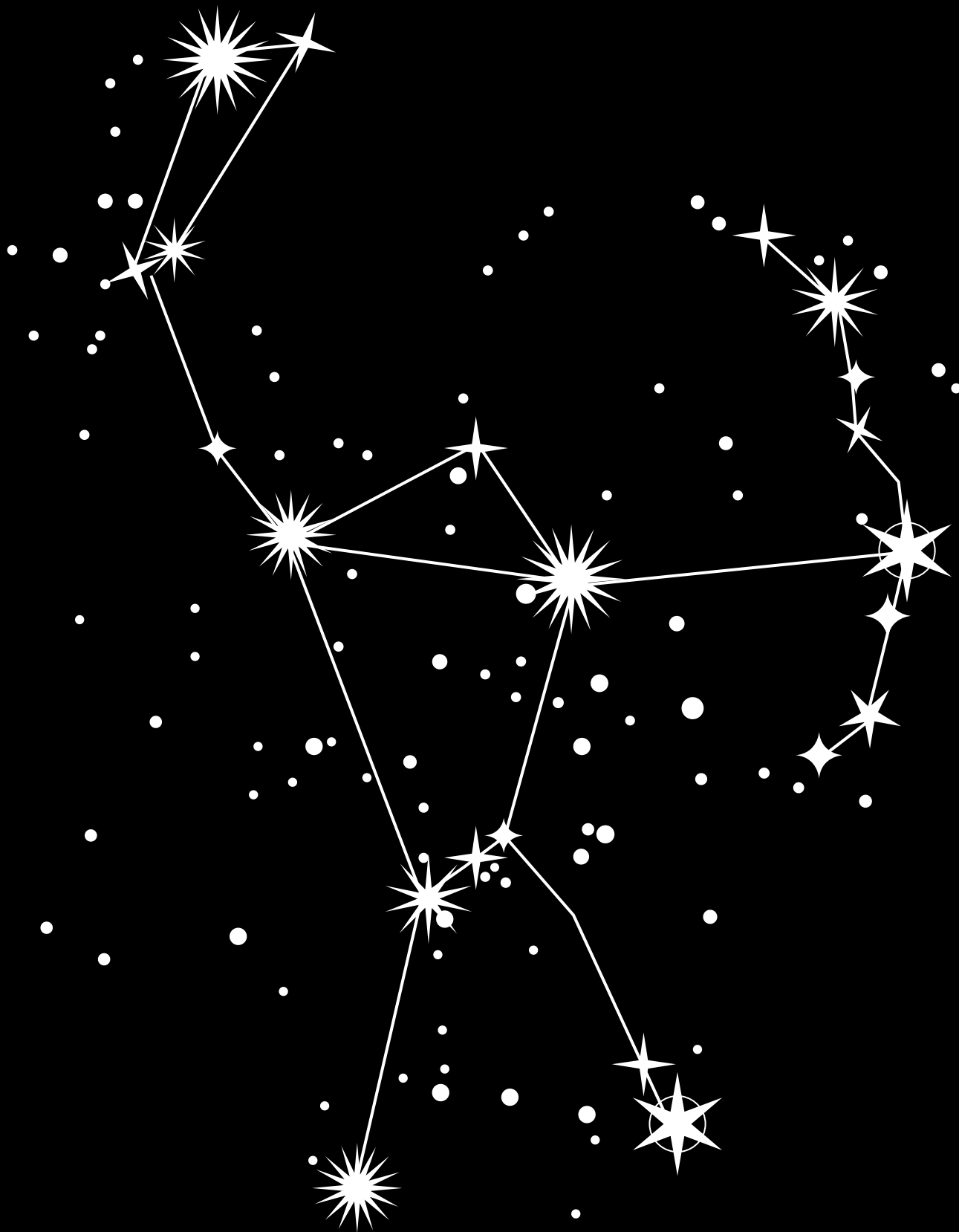


# Pluto

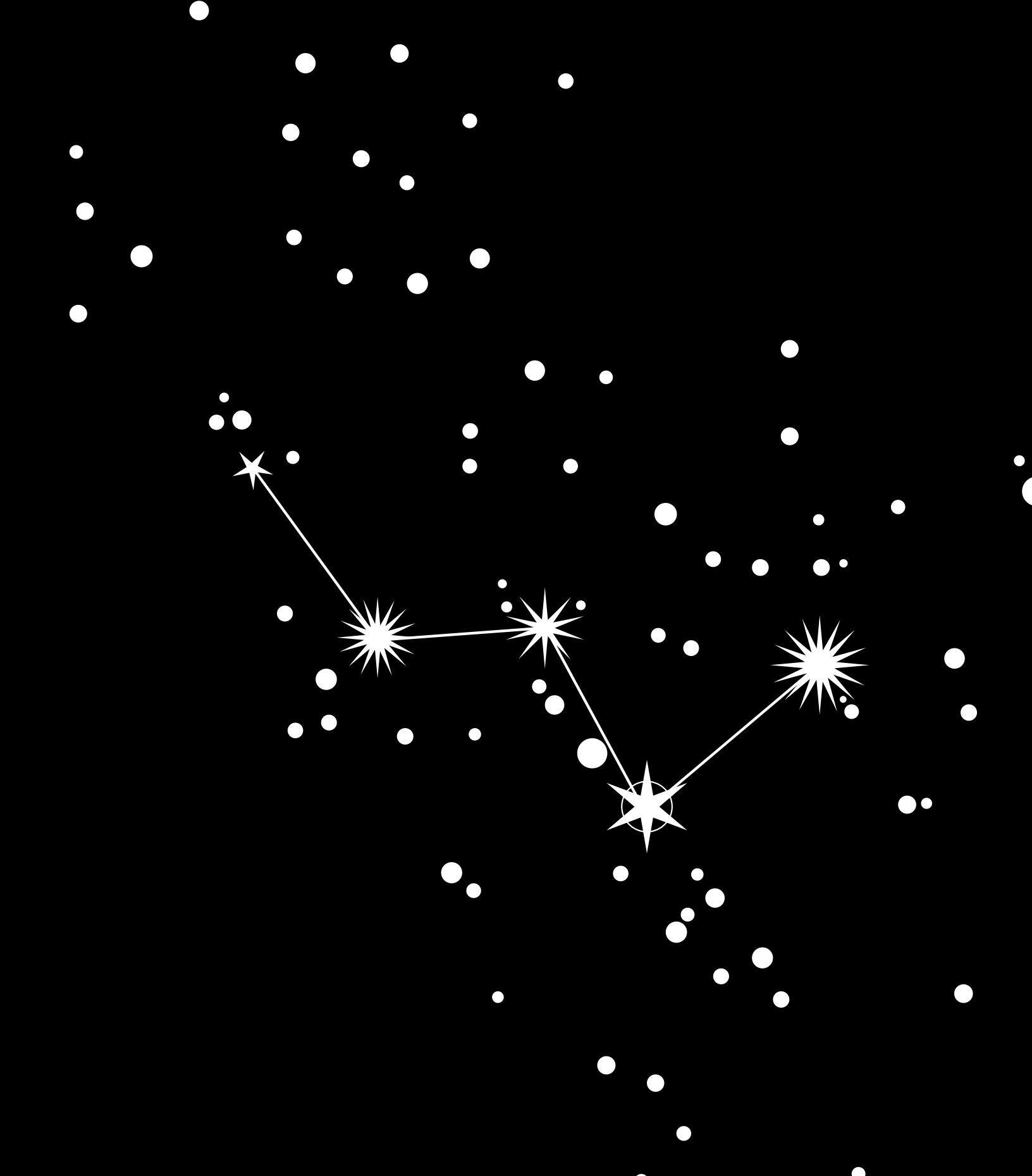
- Pluto was considered a planet for a long time, but was reclassified as a dwarf planet in 2006
- Pluto got its name from an 11 year old girl in Oxford! She was the one who, with the help of her grandfather, wrote to Lowell Observatory that it be named after the Roman god of the underworld
- Pluto is 3.67 billion miles from the Sun and 3.25 billion miles from Earth
- It takes Pluto 248 years to make a full orbit of the Sun!



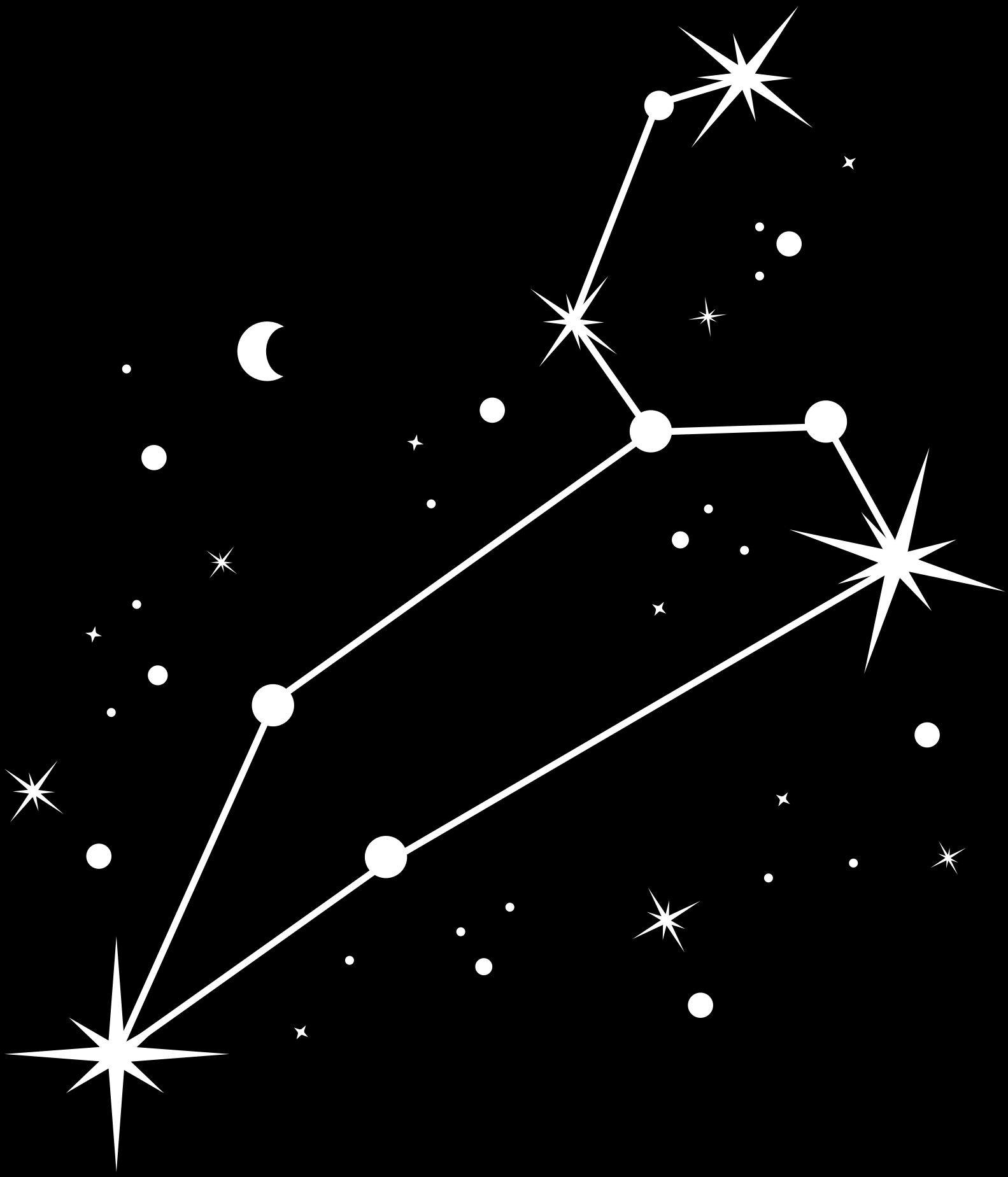
**Sagittarius**



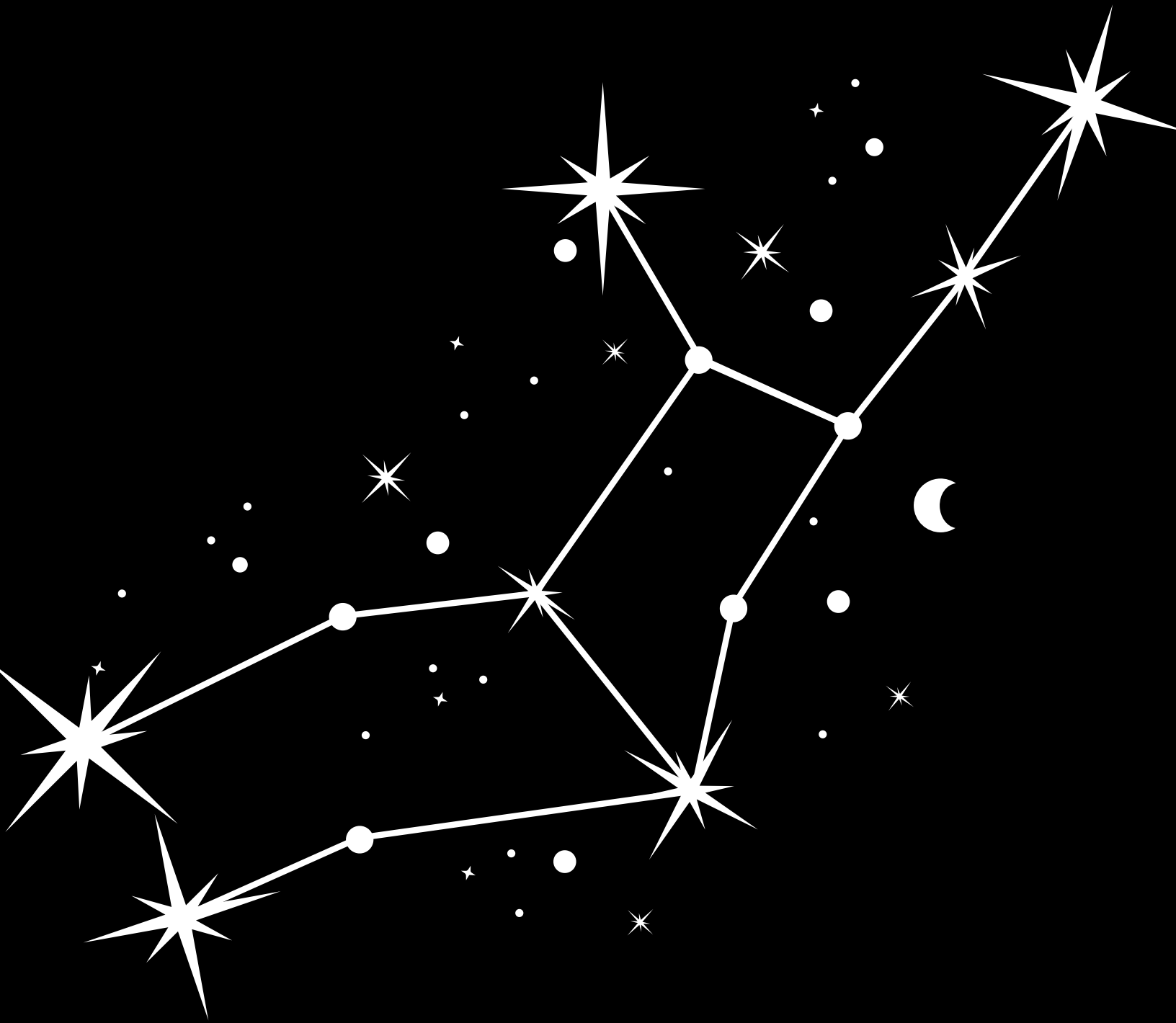
Orion



Cassiopeia



Leo



Virgo



Pisces

# ORIGAMI TUTORIAL

origami stars paper tutorial



1. Turn the paperside upside down



2. Insert the paper at one end



3. Flatten for a knotted look



4. Fold along the five sides of the paper knot



5. Do the same at the other end



6. Insert the remaining paper inside



7. Flatten the paper



8. Press lightly with your fingers until the stars are raised