

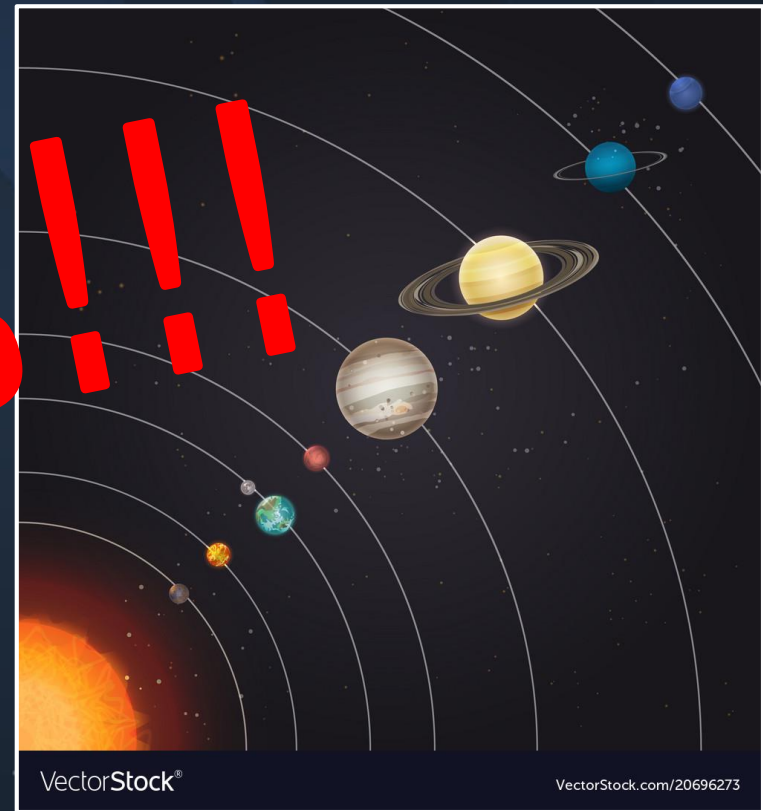
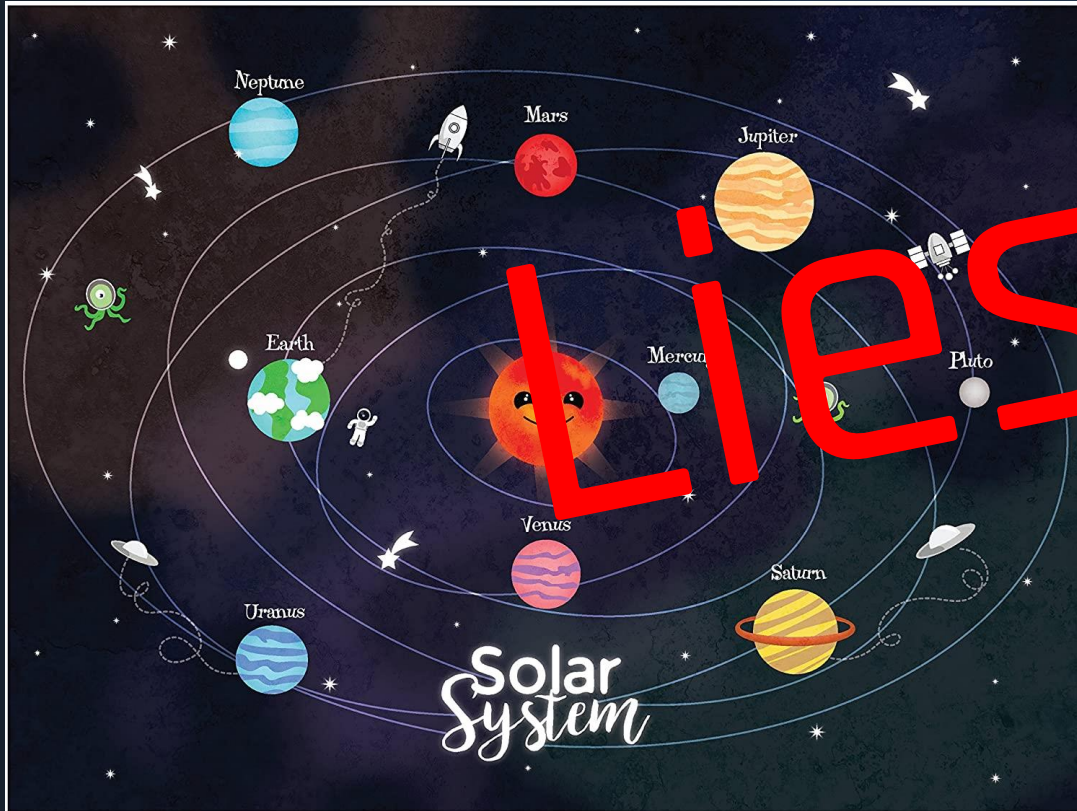


Space!

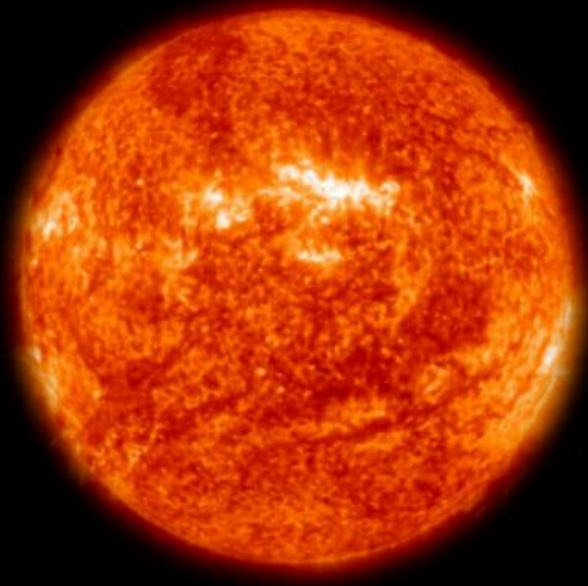


Let's talk scale

Our solar system



THE SOLAR SYSTEM



Solar System

objects to scale

0 40,000
km

The Sun

Diameter: 1,391,684 km

Mercury

Diameter: 4,879 km

Venus

Diameter: 12,104 km

Earth

Diameter: 12,756 km

The Moon

Diameter: 3,474 km

Mars

Diameter: 6,779 km

Jupiter

Diameter: 142,984 km

Jupiter moon

Io: 3,642 km
Europa: 3,121 km
Ganymede: 5,267 km
Callisto: 4,820 km

Saturn

Diameter: 120,536 km

Saturn moon

Mimas: 393 km

Uranus

Diameter: 50,724 km

Neptune

Diameter: 49,530 km

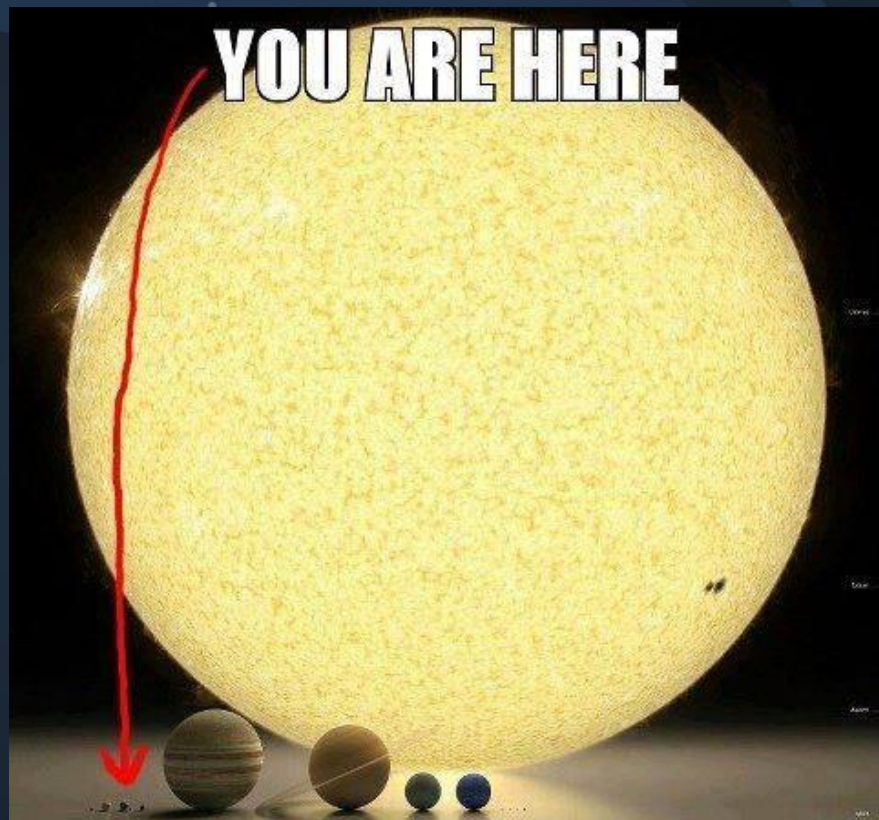
Neptune moon

Triton: 2,706 km

Pluto

Diameter: 2,376 km



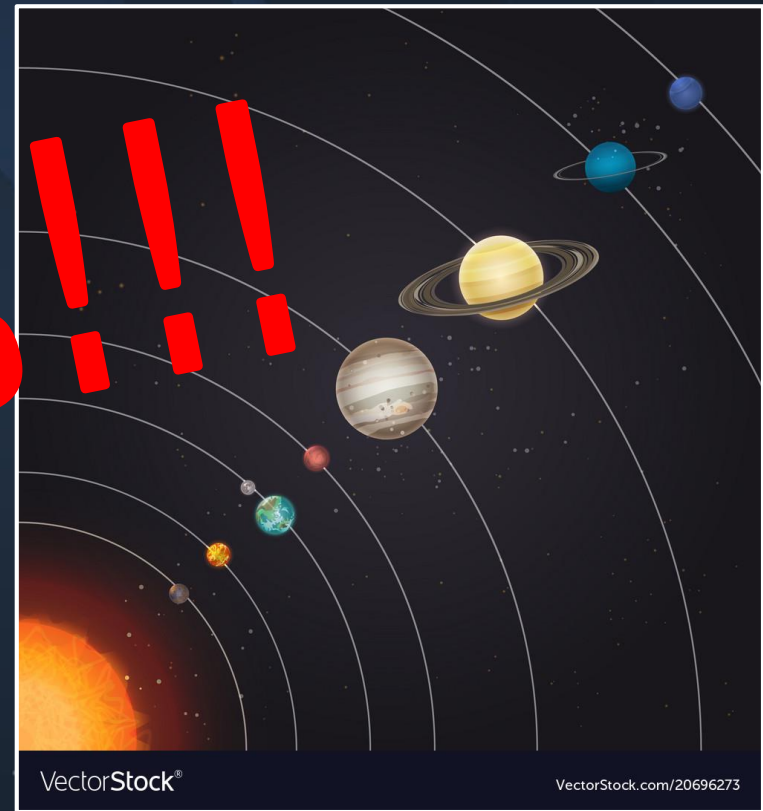
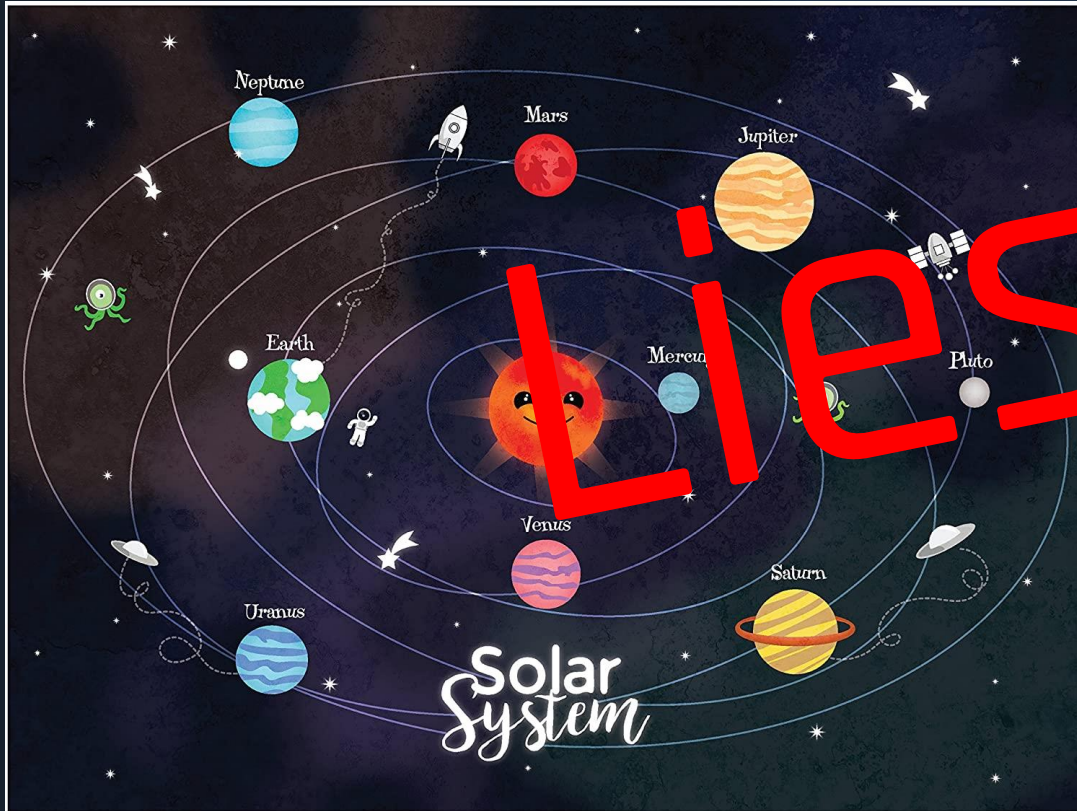


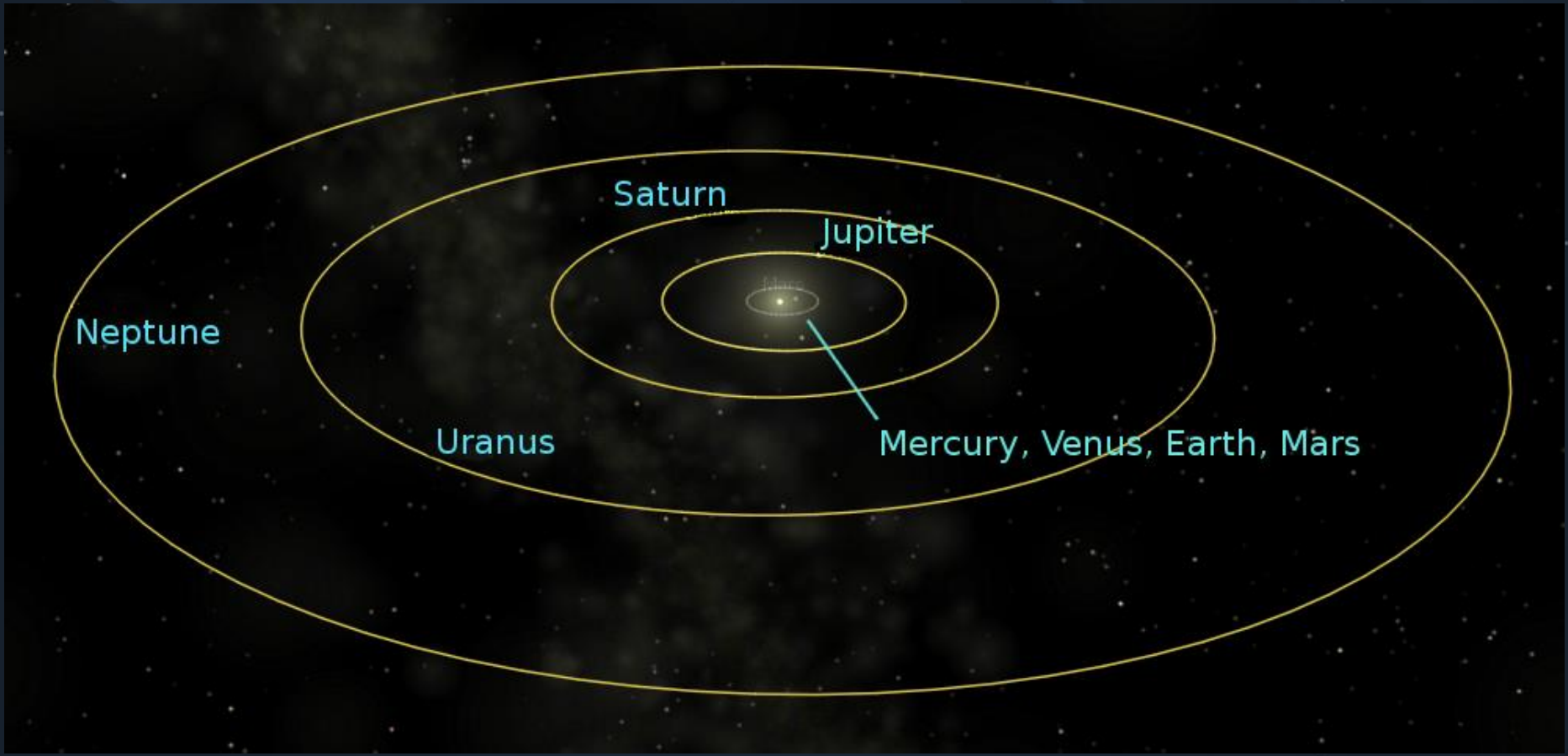
More about
planet info
• [here](#)

The background is a dark blue gradient with several white stars of varying sizes scattered across it. Two large, thin white circles overlap each other, one slightly to the left and one slightly to the right, framing the central text.

Let's talk Distance

Our solar system





Neptune

Saturn

Jupiter

Uranus

Mercury, Venus, Earth, Mars

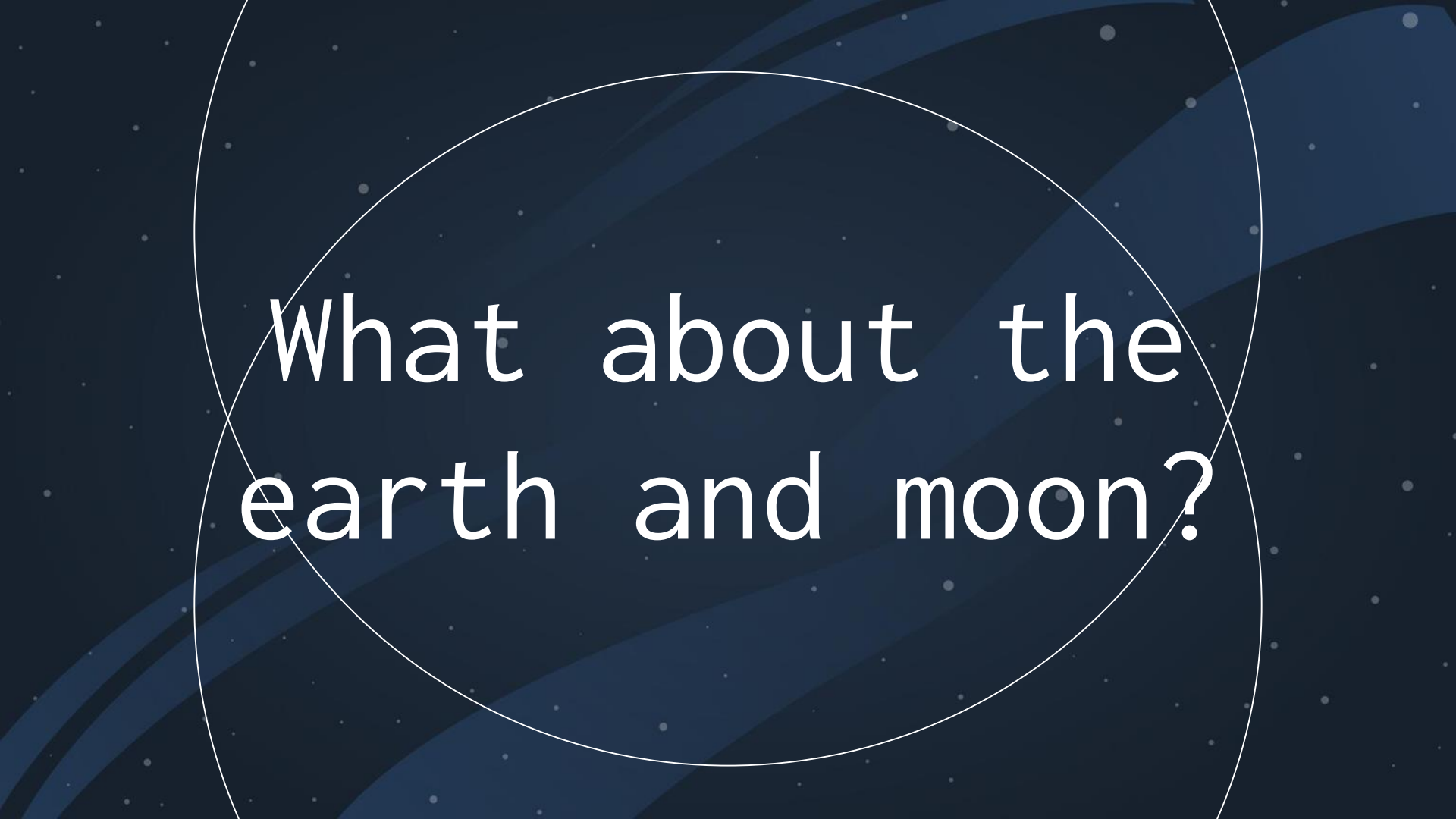
To experience it fully,
check out [this](#) site.

And possibly [this](#) site,
but I like it less.

WANT TO EXPERIENCE IT IN REAL LIFE?



Check out the Solar
System Walk at
Veterans Memorial
Park in Chandler!



What about the
earth and moon?





Earth to the Moon distance



1 Second



8 minutes

The earth rise





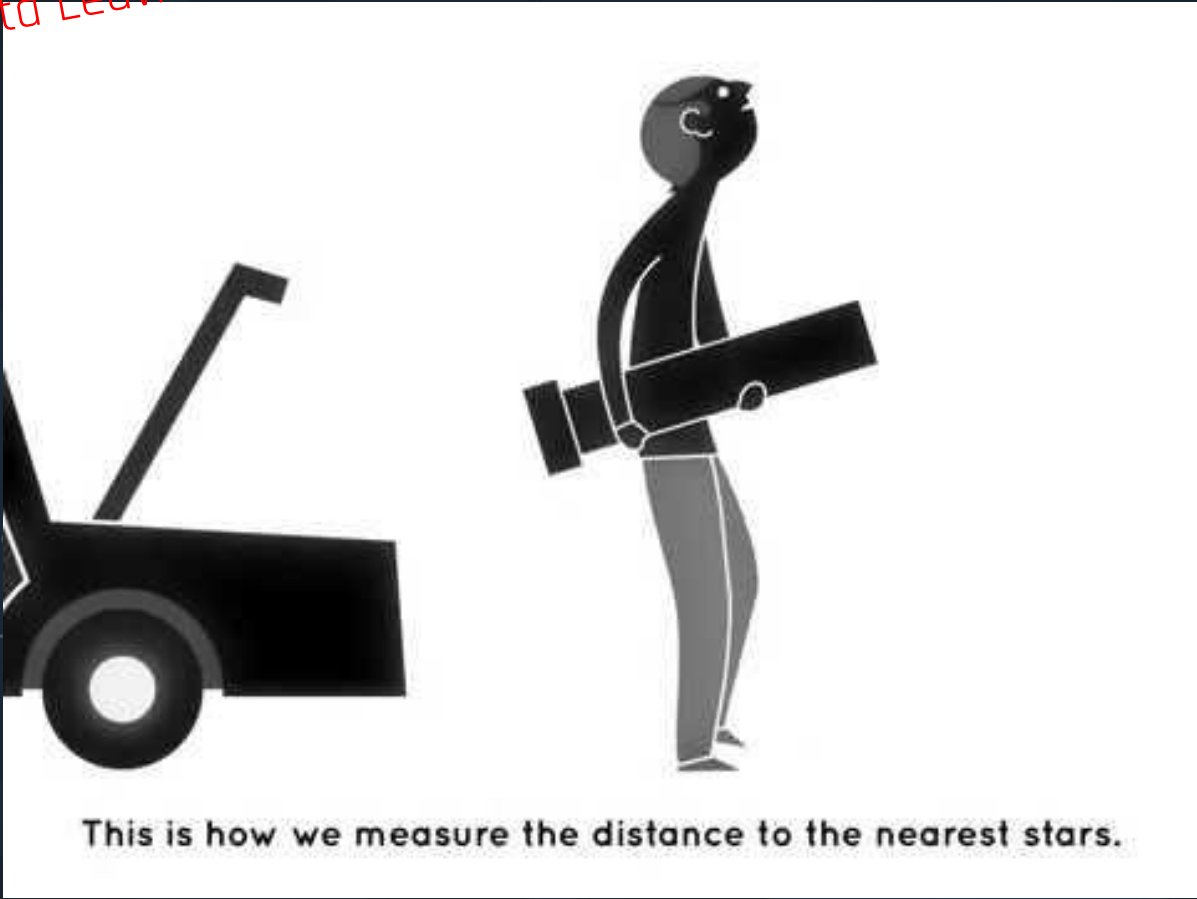
What about the
universe?





To truly experience
scale to the full
extent, check out [this](#)
link.

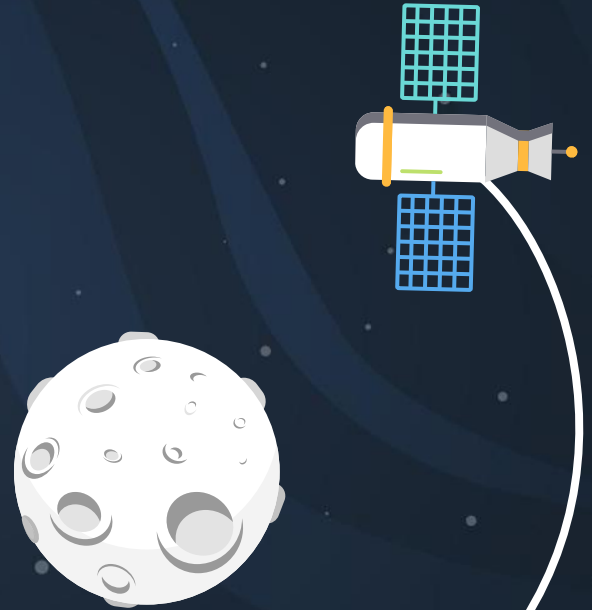
Thanks Henretta Leavitt!



This is how we measure the distance to the nearest stars.

Bottomline

- X Posters lie to you because they would be WAY too big otherwise.
- X Size of celestial objects are usually not to scale. Keep that in mind for the rest of this unit.
- X Distance of celestial objects are usually not to scale. Keep that in mind as well.
- X Space is mostly space. Literally.



Size and scale

[HTTPS://WWW.YOUTUBE.COM/WATCH?V=OWLGKIYNRE4](https://www.youtube.com/watch?v=OWLGKIYNRE4)

Solar system to scale:

https://joshworth.com/dev/pixelspace/pixelspace_solar_system.html

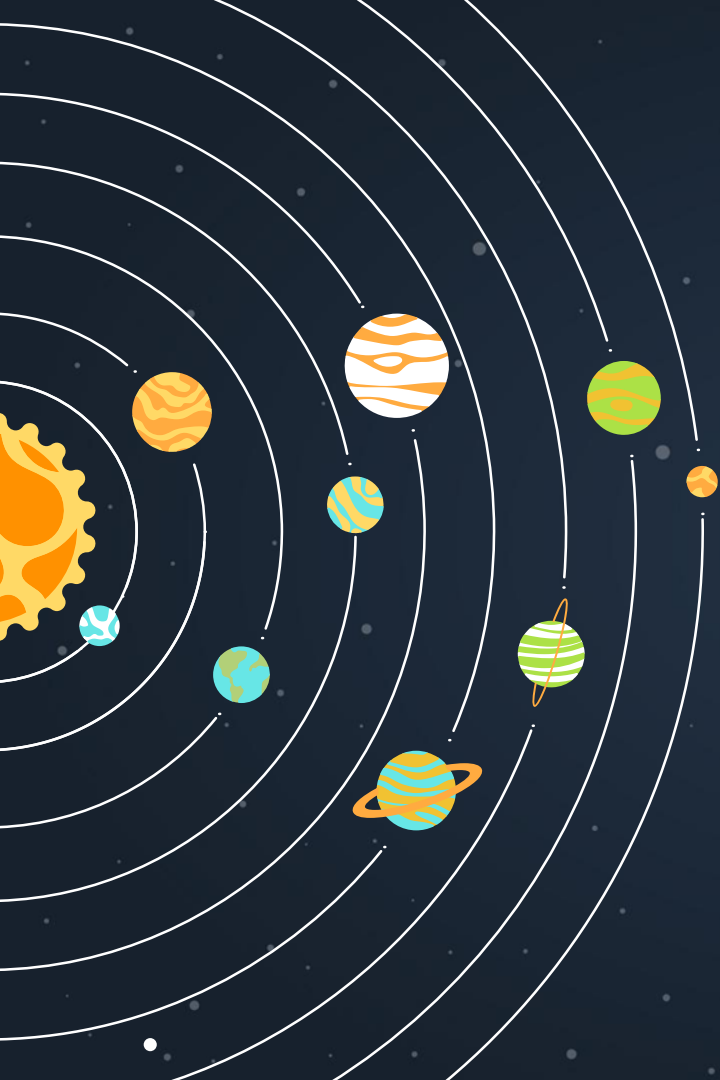
Distance in our solar system:

<http://www.bbc.com/future/ bespoke/20140304-how-big-is-space-interactive/>

Thanks to Henrietta Leavitt for figuring out star distances!

- <https://www.space.com/34708-henrietta-swan-leavitt-biography.html>
- <https://www.fords.org/blog/post/solving-the-unknown-what-astronomer-henrietta-swan-leavitt-accomplished/>
- <https://www.famousscientists.org/henrietta-swan-leavitt/>





THINGS IN THE SOLAR SYSTEM



One light-year

5.8 trillion miles

(9.4 trillion kilometers)



What are some
things that are
located in our
solar system?

THINGS IN THE SOLAR SYSTEM



Planets

Comets

The Kuiper Belt

Moons

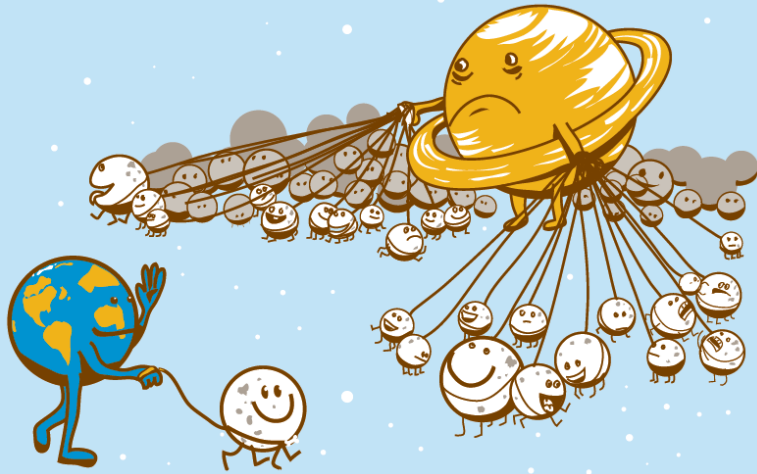
Asteroids

Interplanetary Medium

Dwarf Planets

Meteors

The Oort Cloud



THEAWKWARDYETI.COM

RESEARCH TIME

Pick a topic to research and own that slide! Find good links and make a study guide worthy slide for others.

SLIDES EXPECTATIONS

1. One slide per person so decide who is doing what
2. Your name goes in the slide title along with the research category
3. Give a definition, examples, and describe the category in your own words
4. Have pictures and find good quality links that everyone can get to
5. Organize it how you want, but make sure it is easily readable



AWKWARDYETI.COM

When Pluto retired in 2006...

DONE EARLY?

[More info on the solar system](#)

[Fun podcast about space and science](#)

[Google's interactives about the solar system](#)

RESEARCH TIME

Finish up your Slide and then check out the other Slides so you know about the different things in the solar system





What was
something
interesting you
learned in
research?

MORE THINGS TO EXPLORE!



NASA'S SITE

If you didn't find it in your research, it's really good



SYSTEM GAME

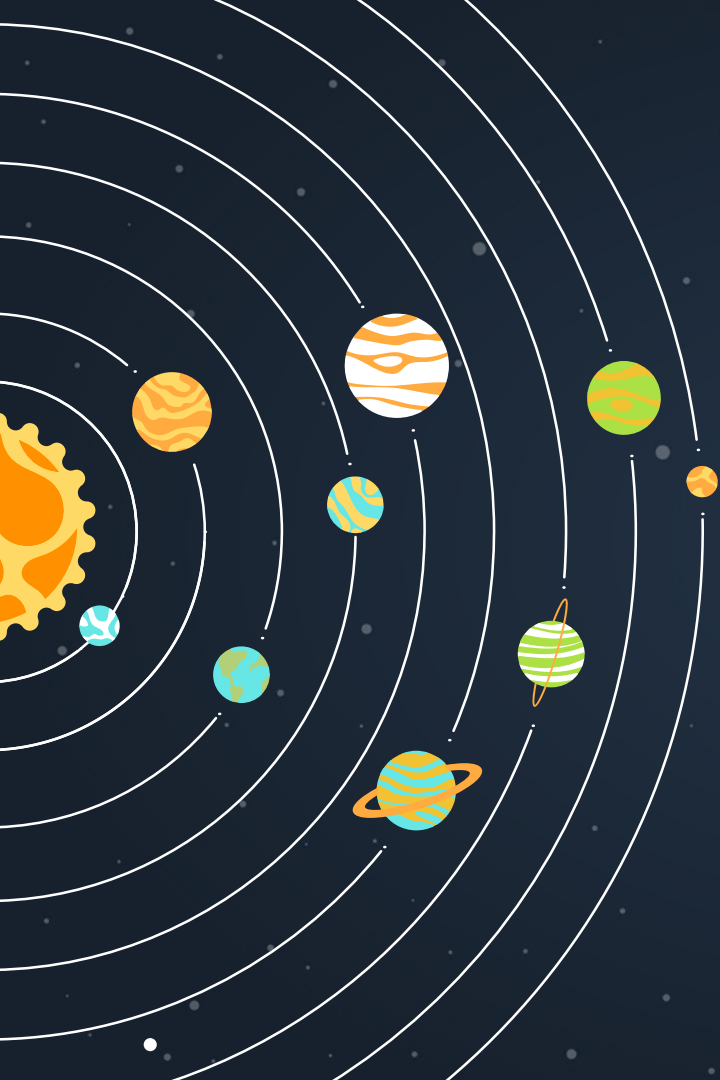
Interactive solar system game



NAT GEO'S SITE

Another good site if you didn't find it yet

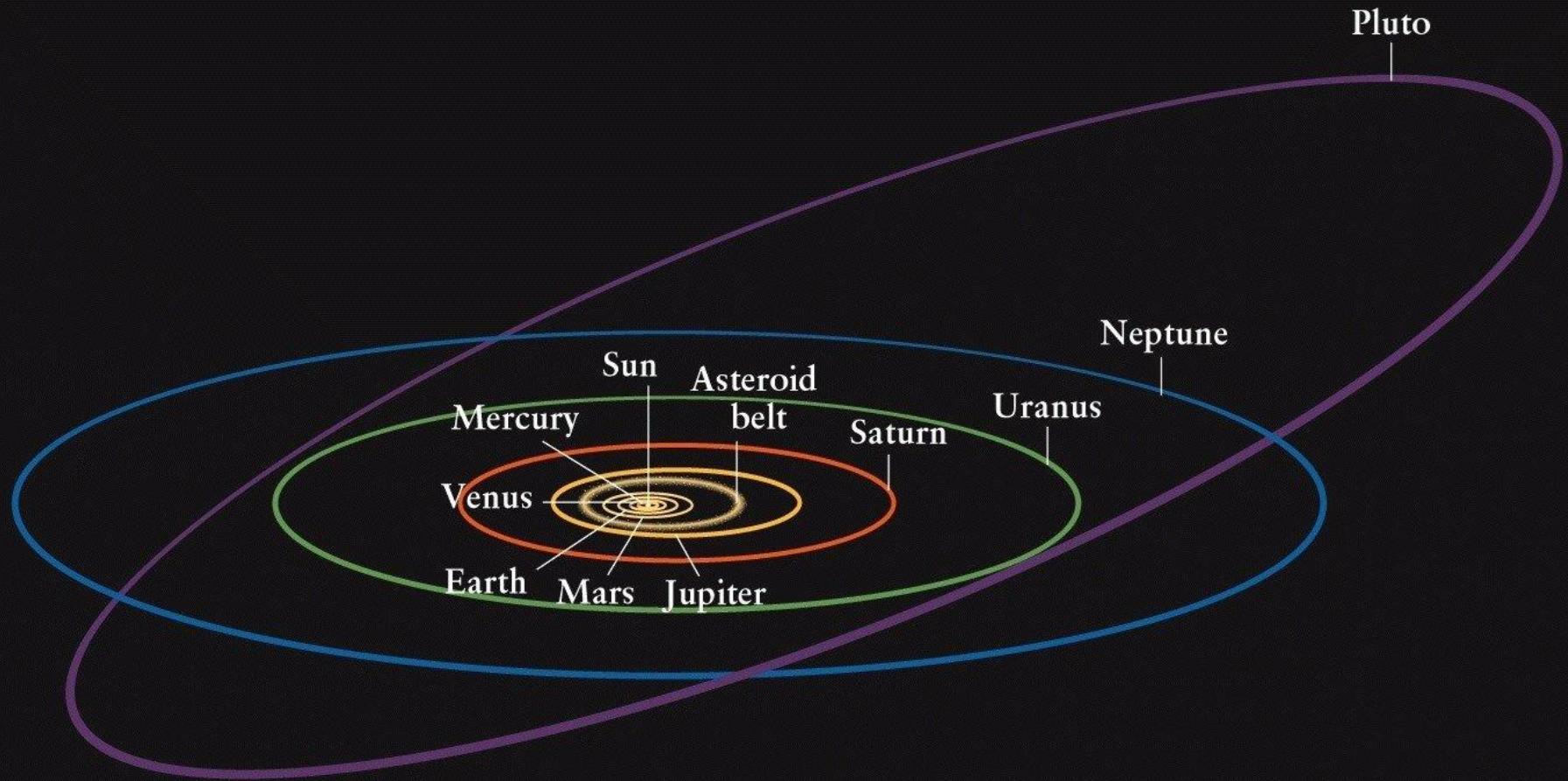
Unexplainable: Sonic tour of the solar system



ORBITS AND GRAVITY



True or false:
All orbits are in a
flat plane.

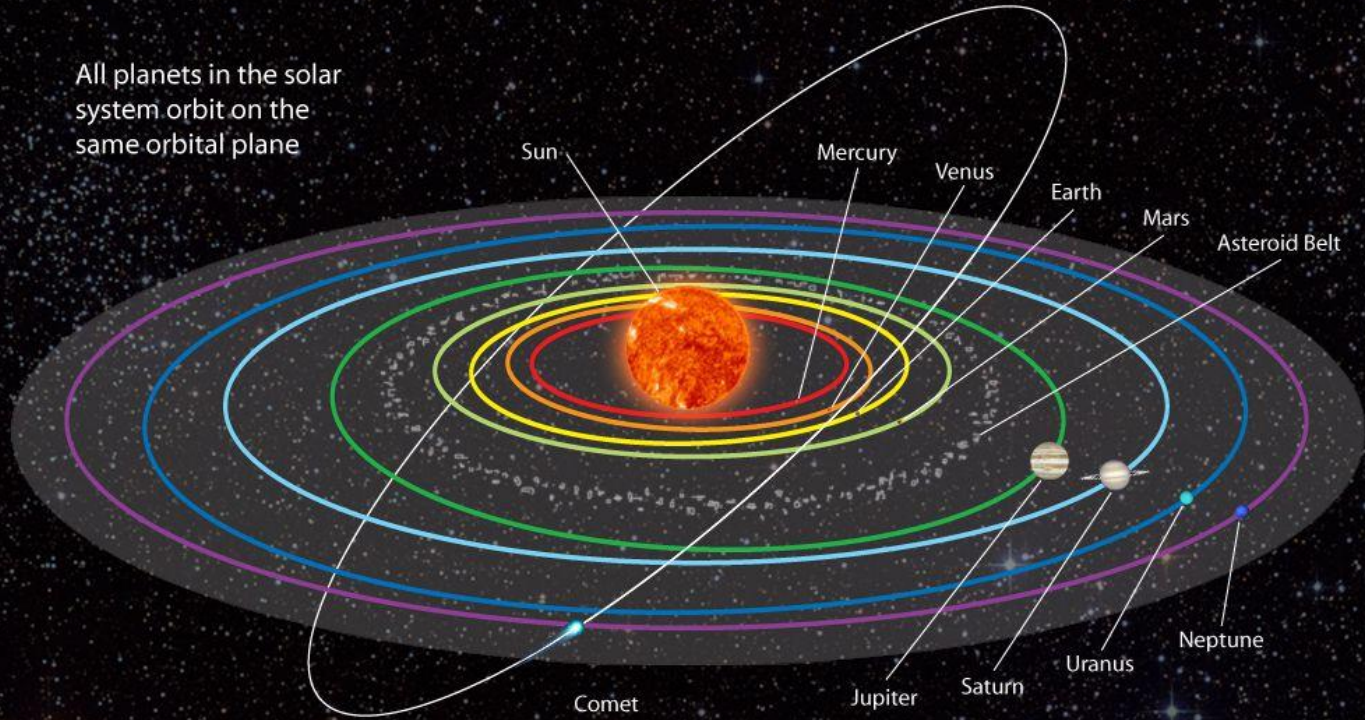




True or false:
All orbits are
circles.

Orbital Plane

All planets in the solar system orbit on the same orbital plane



* Many comets exist outside the orbital plane

WHAT PLANET IS THE MOSTEST CLOSEST?





VOCAB WORDS

AU - one Astronomical Unit equals the average distance measured from the center of the sun to the center of Earth

Orbit - an object's path around the Sun

Gravity - force that attracts all objects toward each other



VOCAB WORDS



Law of Universal Gravitation - from Isaac Newton that states every object in the universe attracts every other object in the universe

Inertia - tendency of an object to resist a change in motion

Orbital Motion - combination of inertia and gravity



SITES TO INVESTIGATE

01

THE SKY

Interactive showing the orbits of the planets and major celestial objects

02

PHET

Phet interactive showing gravity and orbits

03

LAWS OF MOTION

Explains the three laws of Kepler's Laws of Orbital Motion

04

BONUS!

Get involved with some space science yourself!

