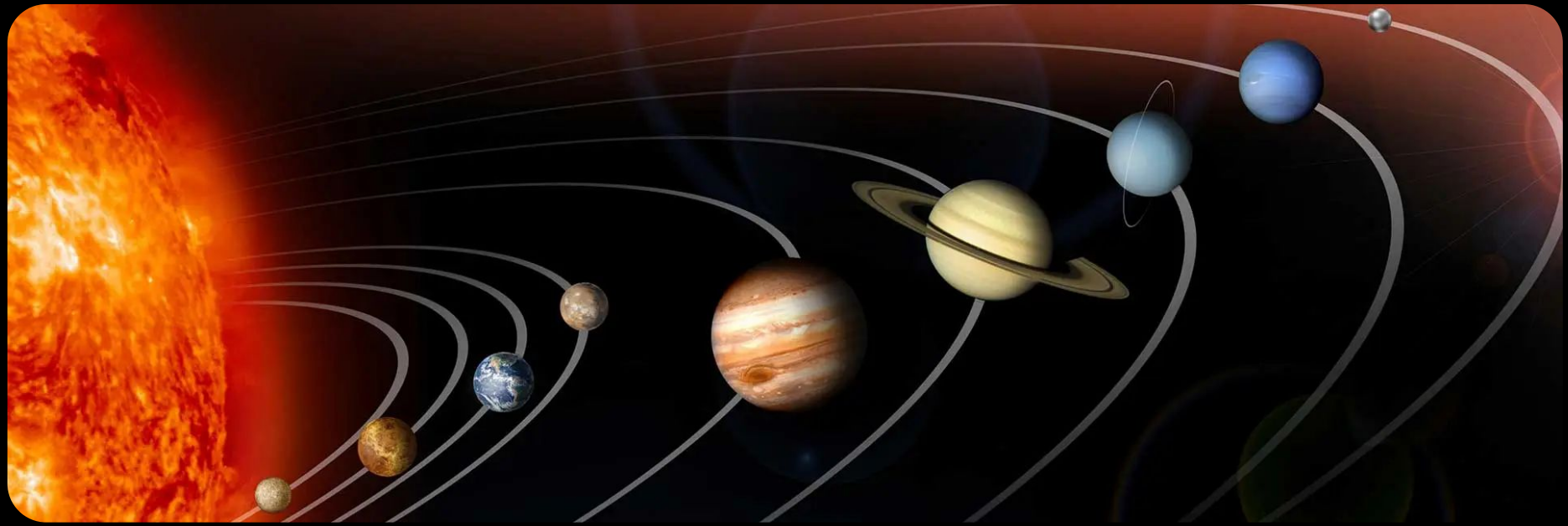
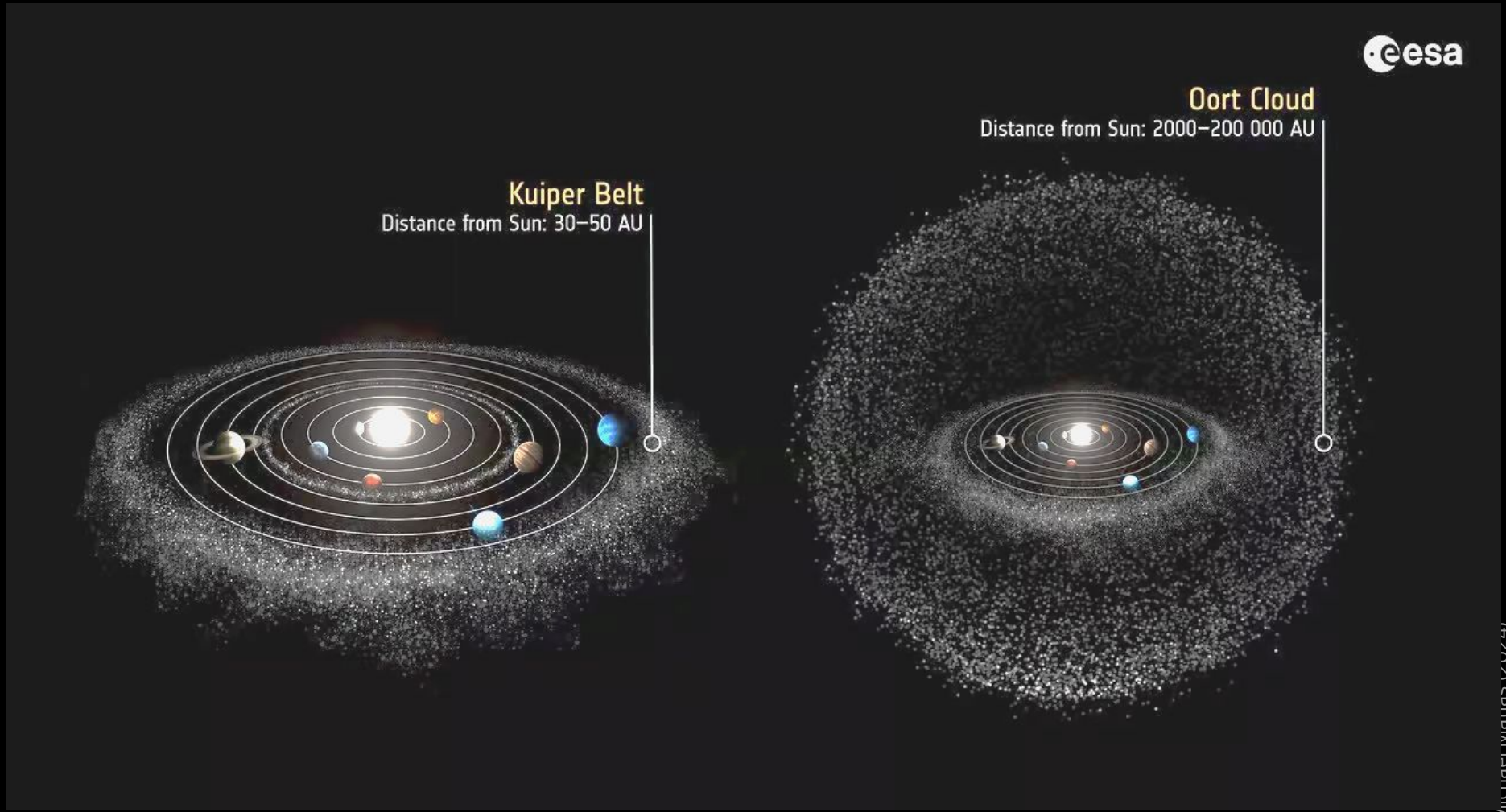
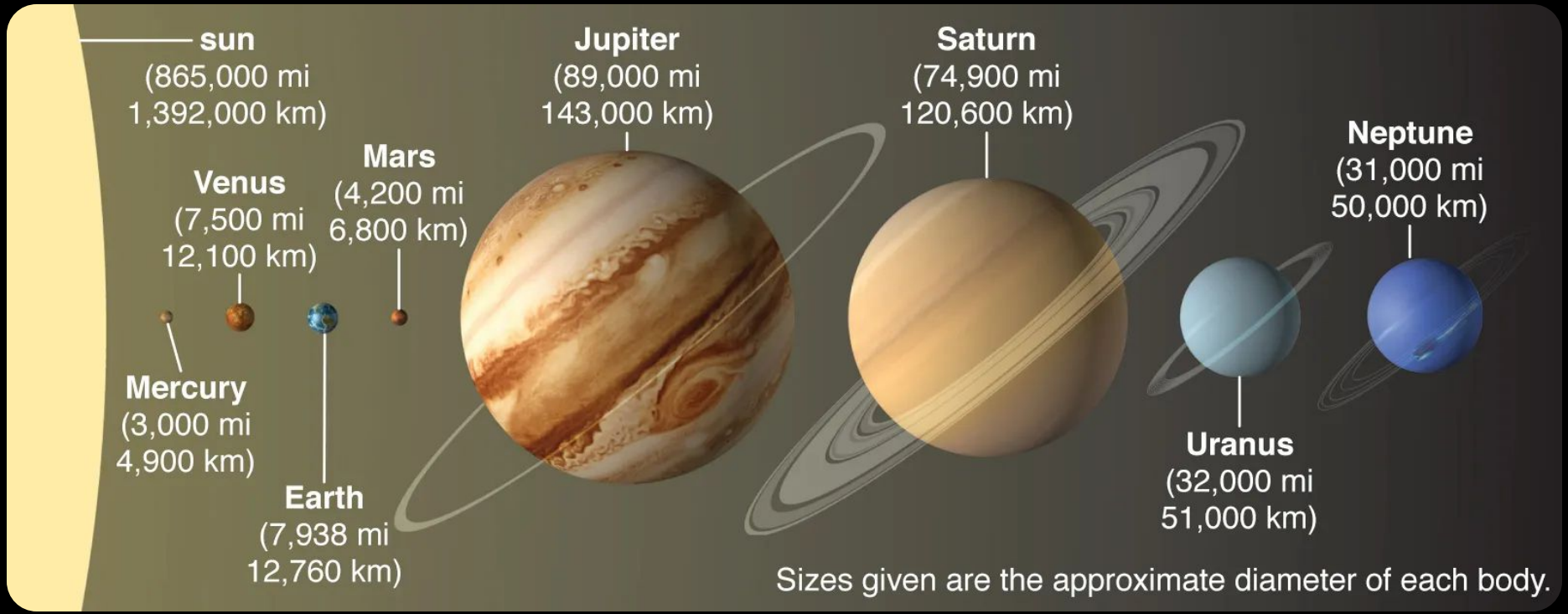
Lesson 3: The Solar System



How did the solar system evolve?





Terrestrial planets
(inner planets)

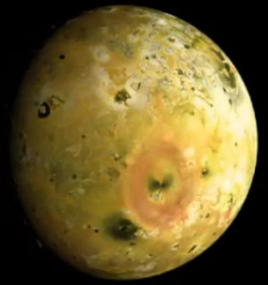
Gas Giants
(outer planets)

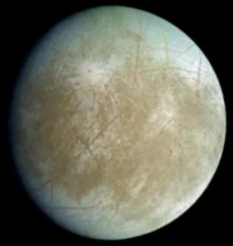
Solar System Major Moons

The Solar System contains 18 or 19 natural satellites of planets that are large enough for self-gravity to make them round. (Why the uncertain number? Neptune's moon Proteus is on the edge.) Two of them are larger than Mercury; seven are larger than Pluto and Eris. If they were not orbiting planets, many of these worlds would be called "planets," and scientists who study them are called "planetary scientists."

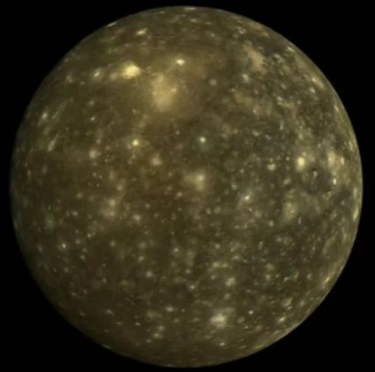
Images from Galileo (Jupiter's moons), Cassini (Saturn's moons), Voyager 2 (Uranus and Neptune's moons). Data from NASA/JPL, processed by Ted Stryk, Gordan Ugarkovic, Emily Lakdawalla, and Jason Perry. Earth's Moon photo by Gari Arrillaga. Montage by Emily Lakdawalla, The Planetary Society, blog@planetary.org.

Jupiter...


Io


Europa


Ganymede


Callisto

Saturn...


Mimas Enceladus Tethys Dione Rhea


Titan


Iapetus

Earth...


The Moon

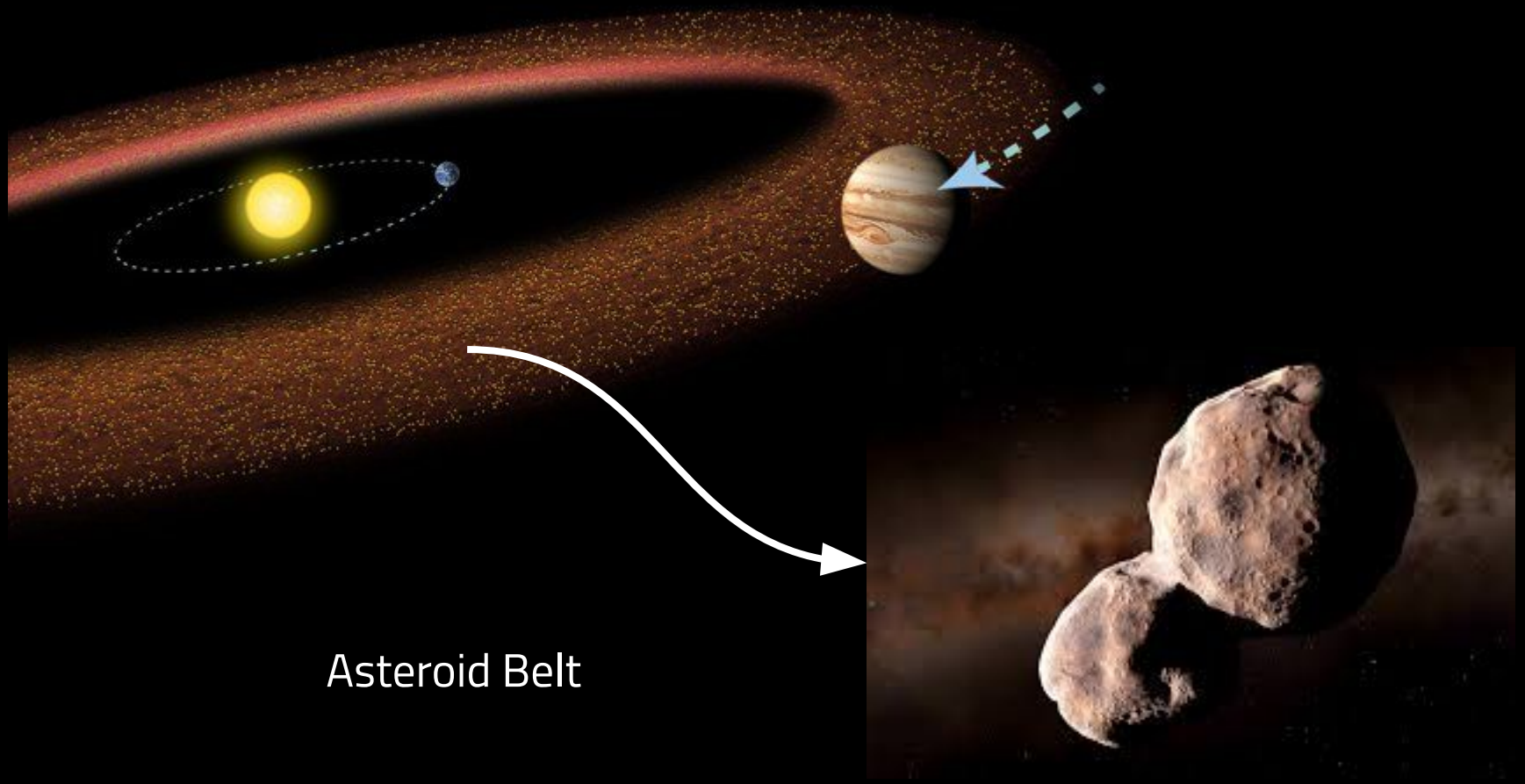
Uranus...


Miranda Ariel Umbriel Titania Oberon

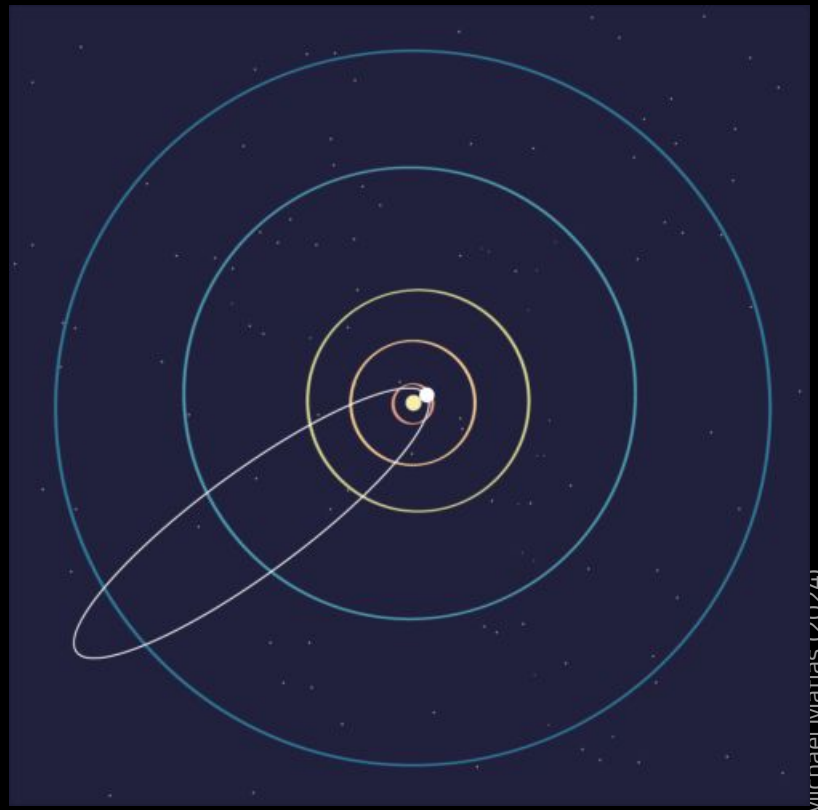
Neptune...


Proteus


Triton



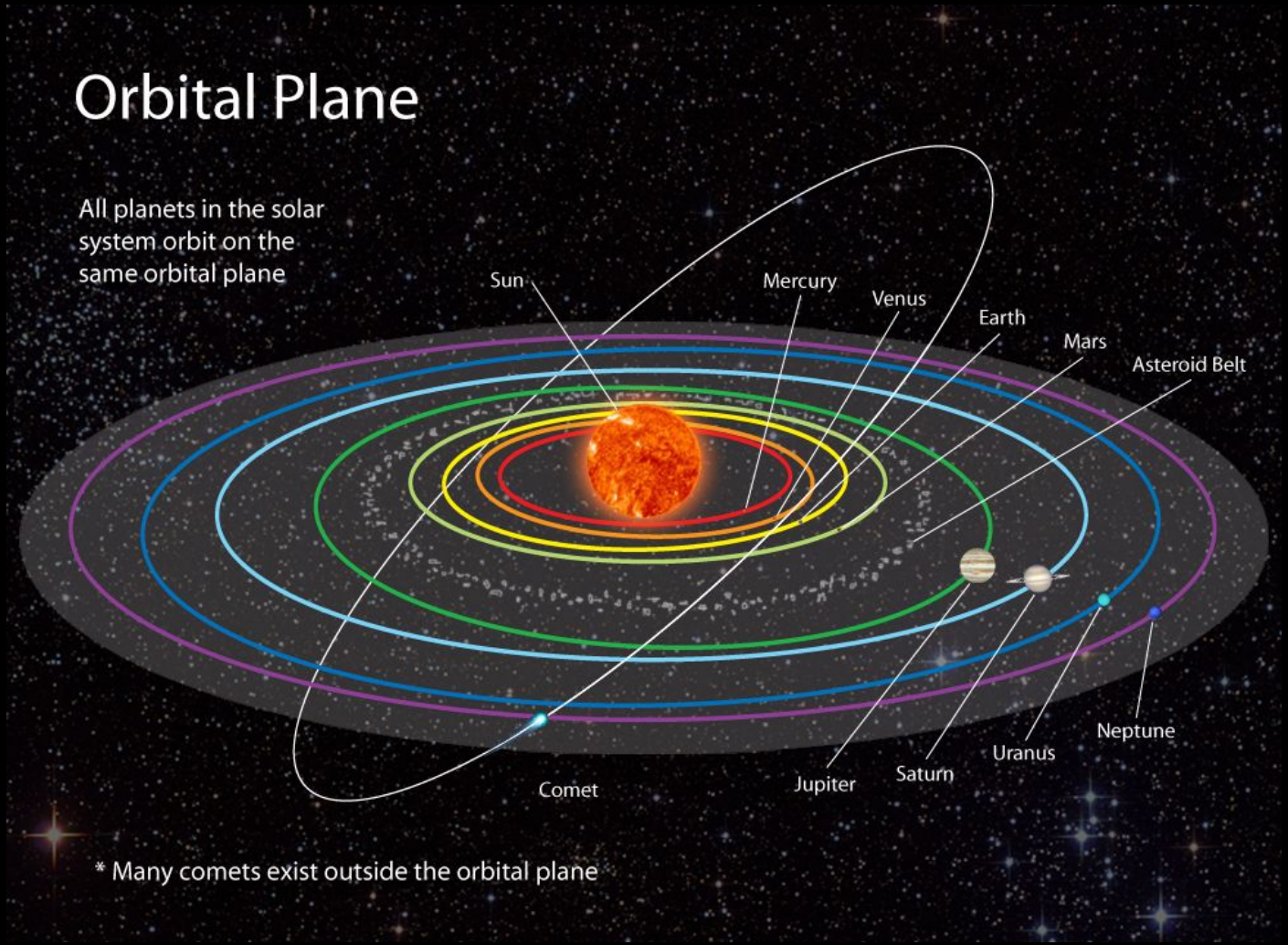
Comets



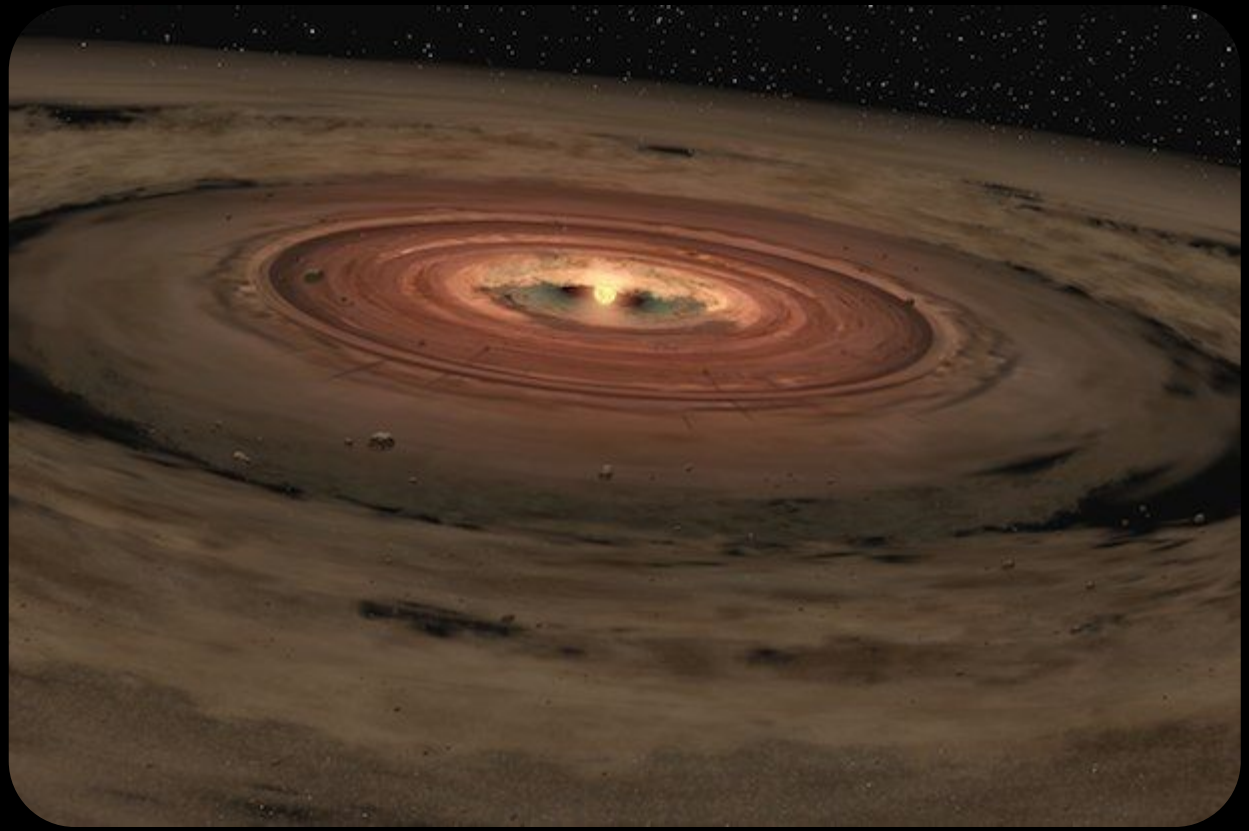
Dwarf Planets

Orbital Plane

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

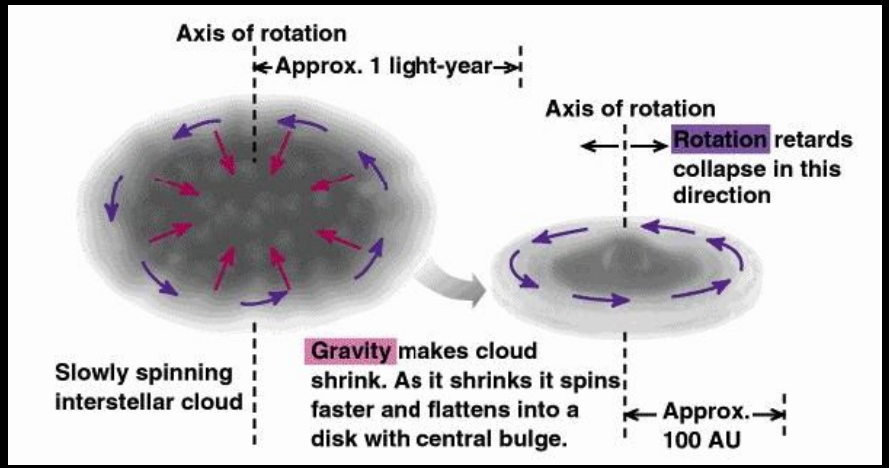


* Many comets exist outside the orbital plane



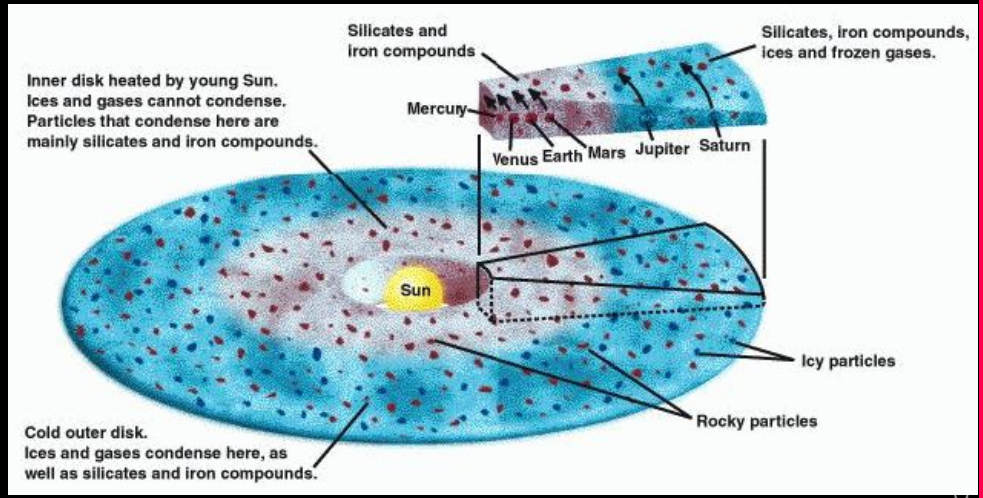
How are planetary systems formed?

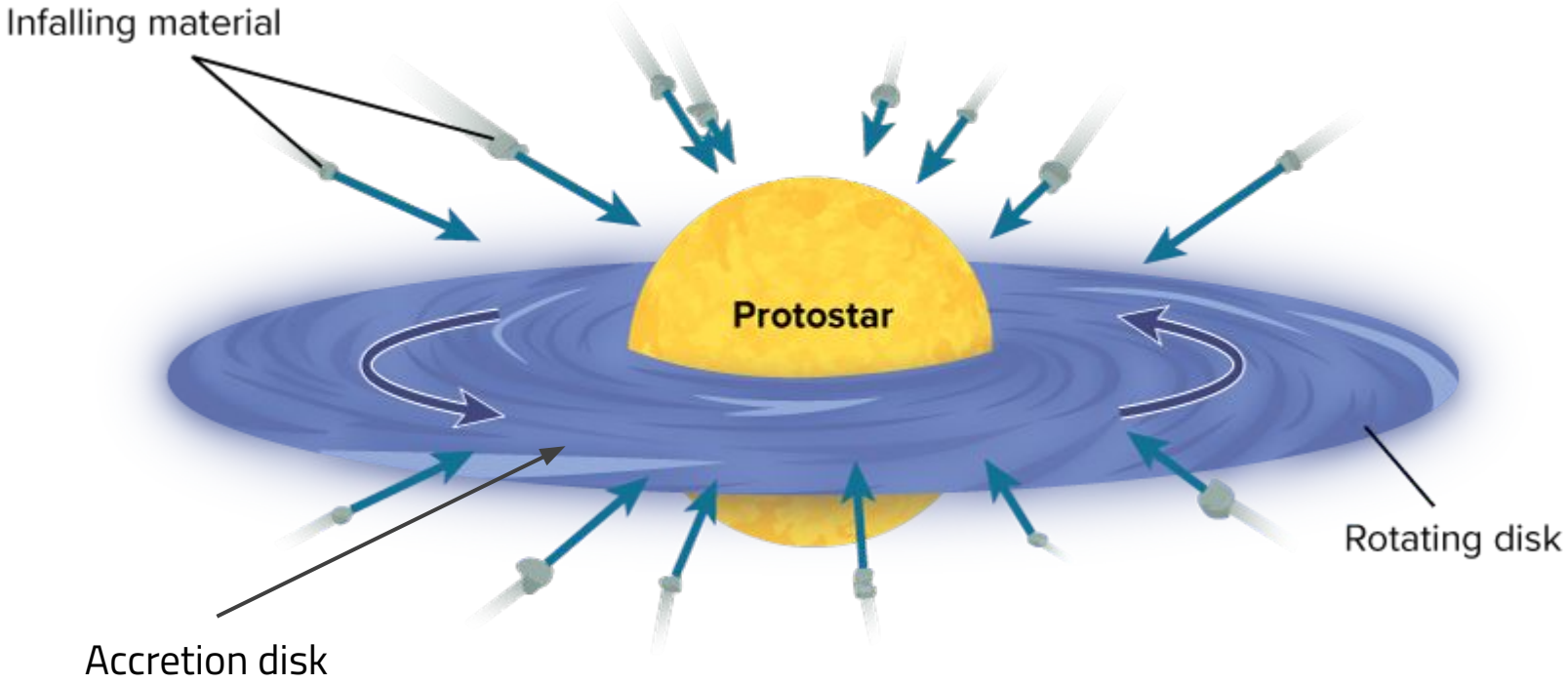
Formation of Solar Systems: Nebular Theory



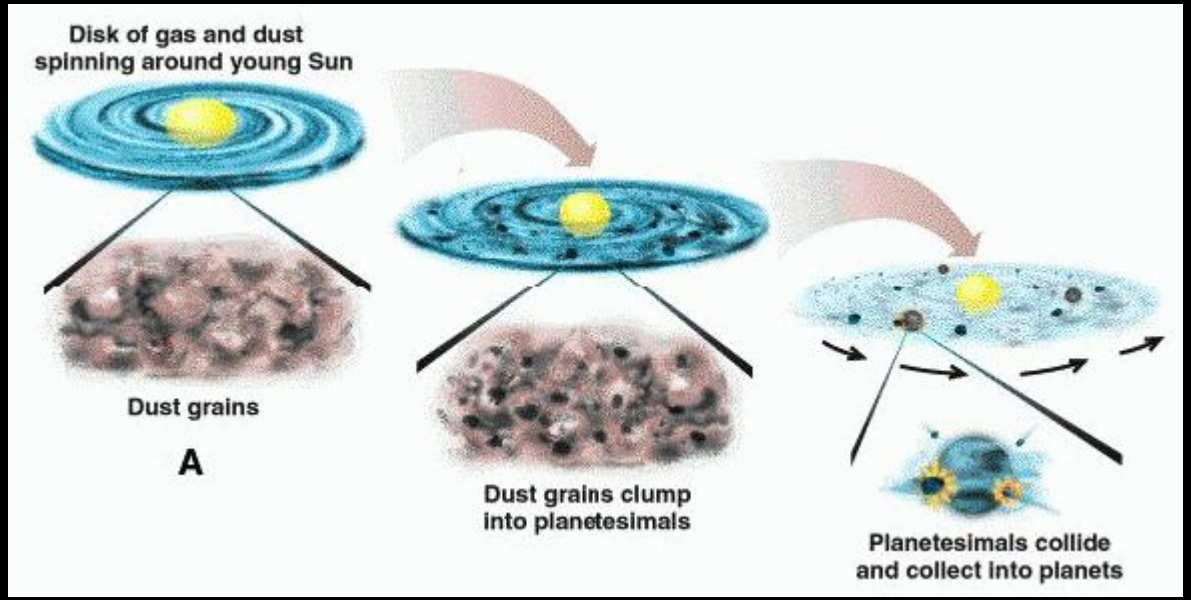
Cloud collapse

Formation of Protoplanetary disk





Formation of Solar Systems: Nebular Theory



Growth of Planets