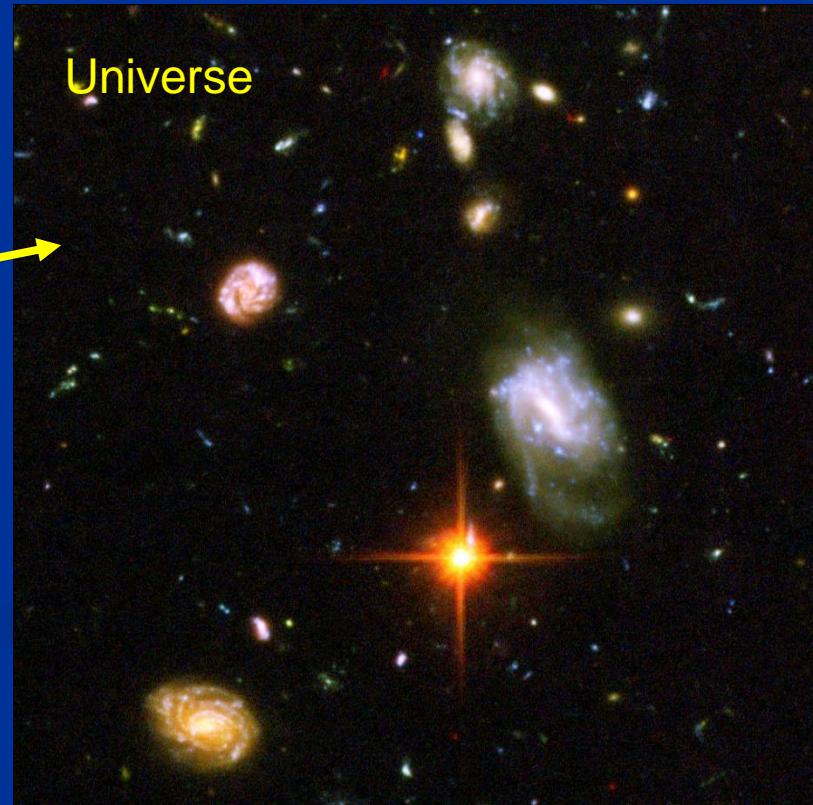
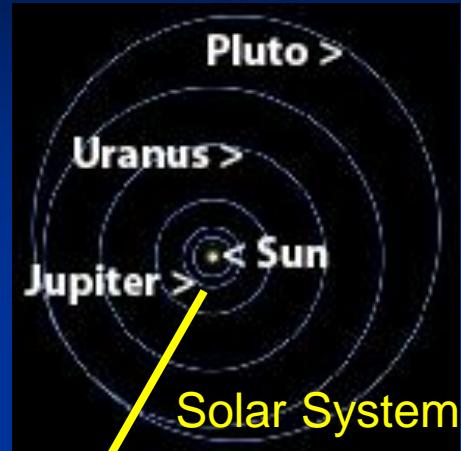
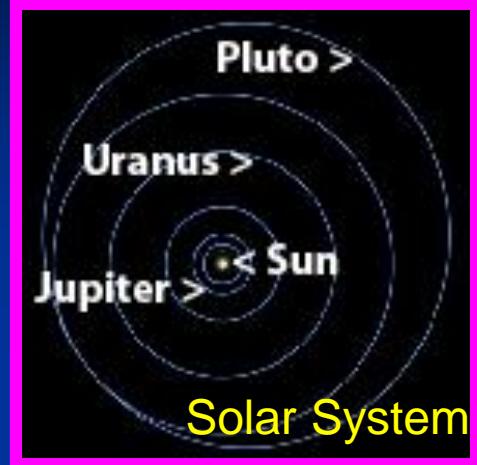


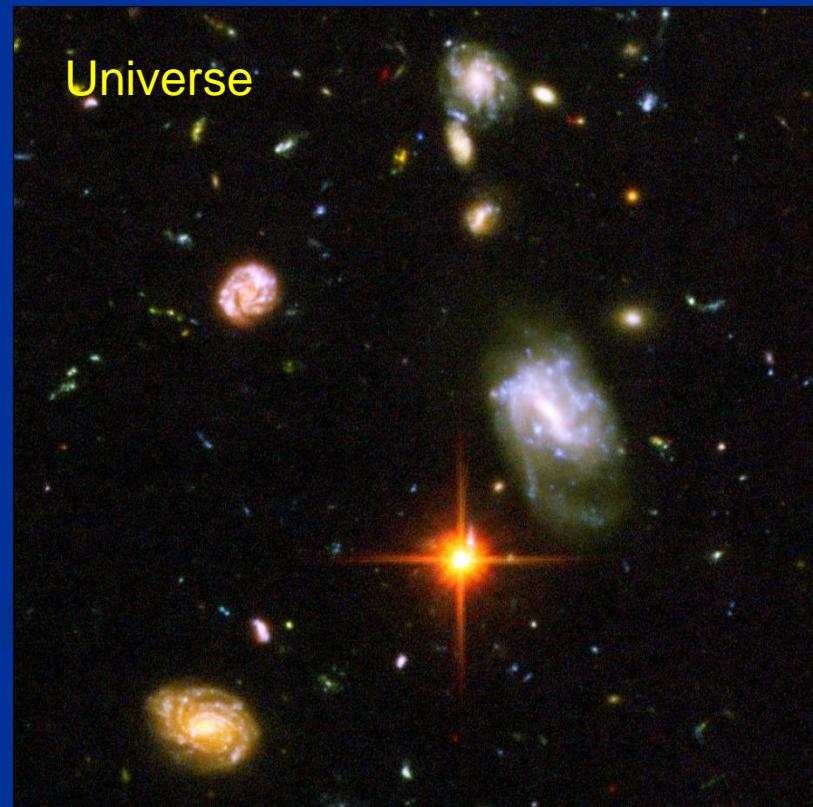
What's the Difference?



The Solar System



Galaxy



Universe

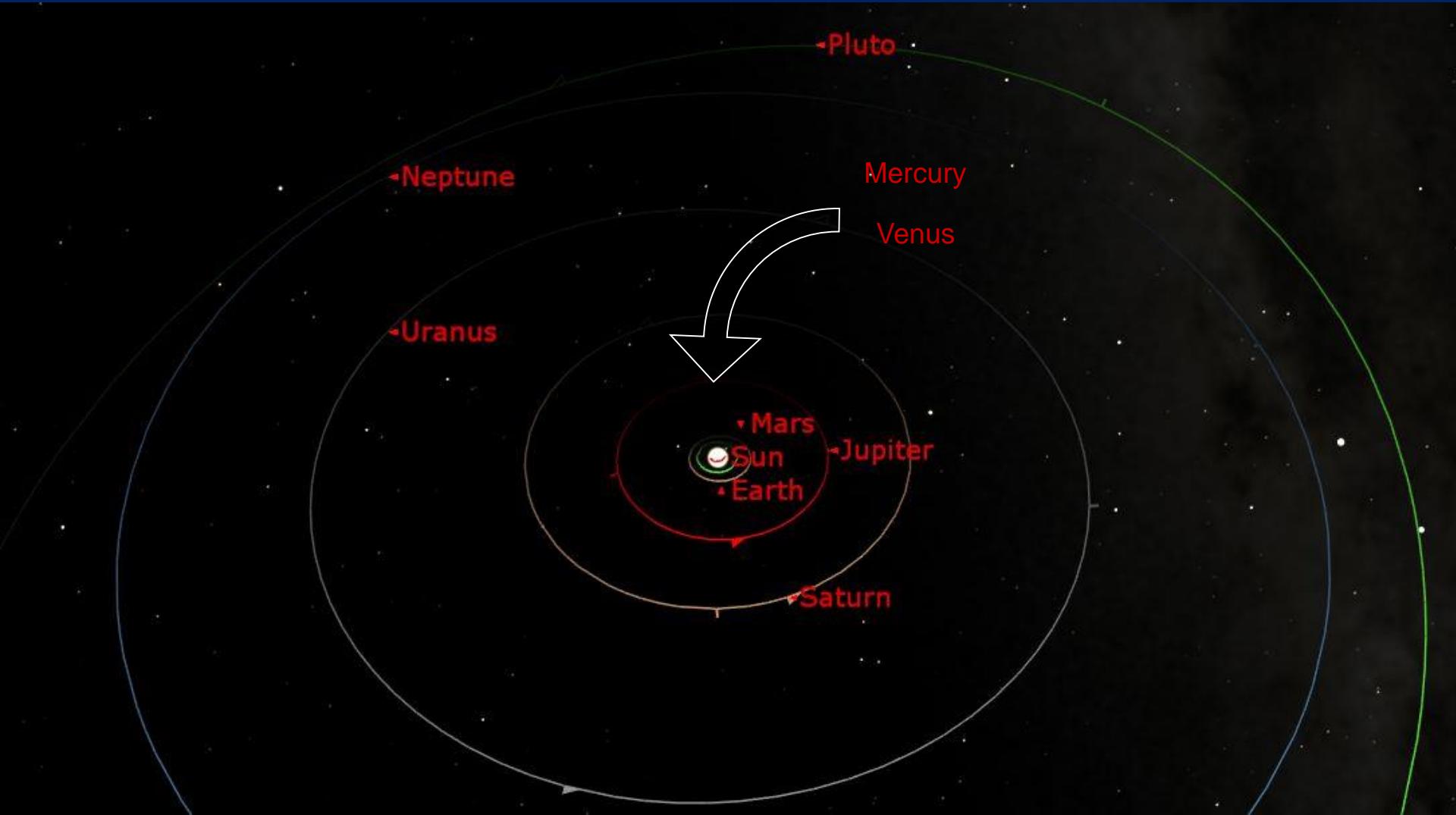
My Very Elegant Mother Just Sat Upon Nine Porcupines



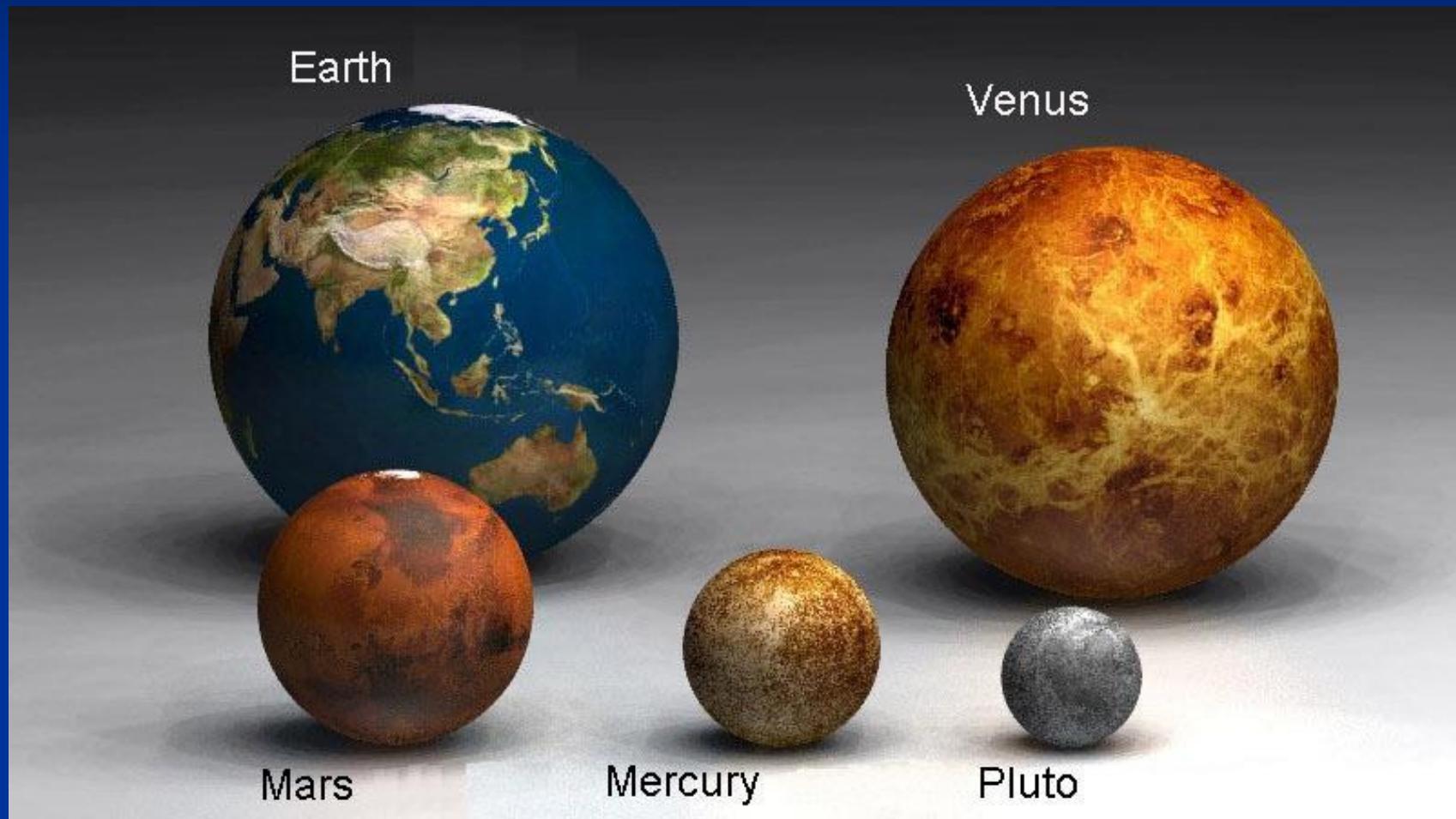
My Very Elegant Mother Just Sat Upon Nine Porcupines



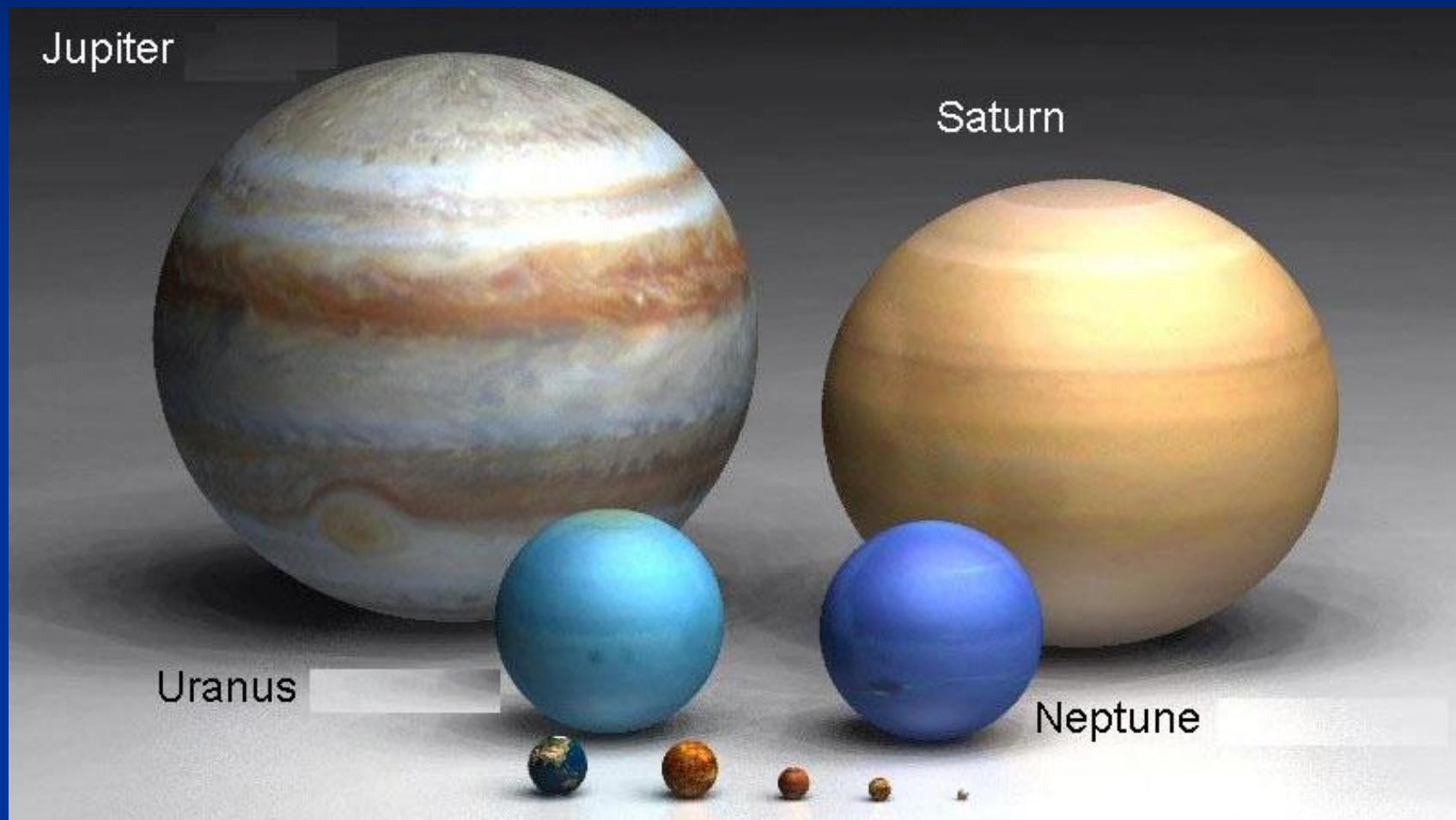
Solar System



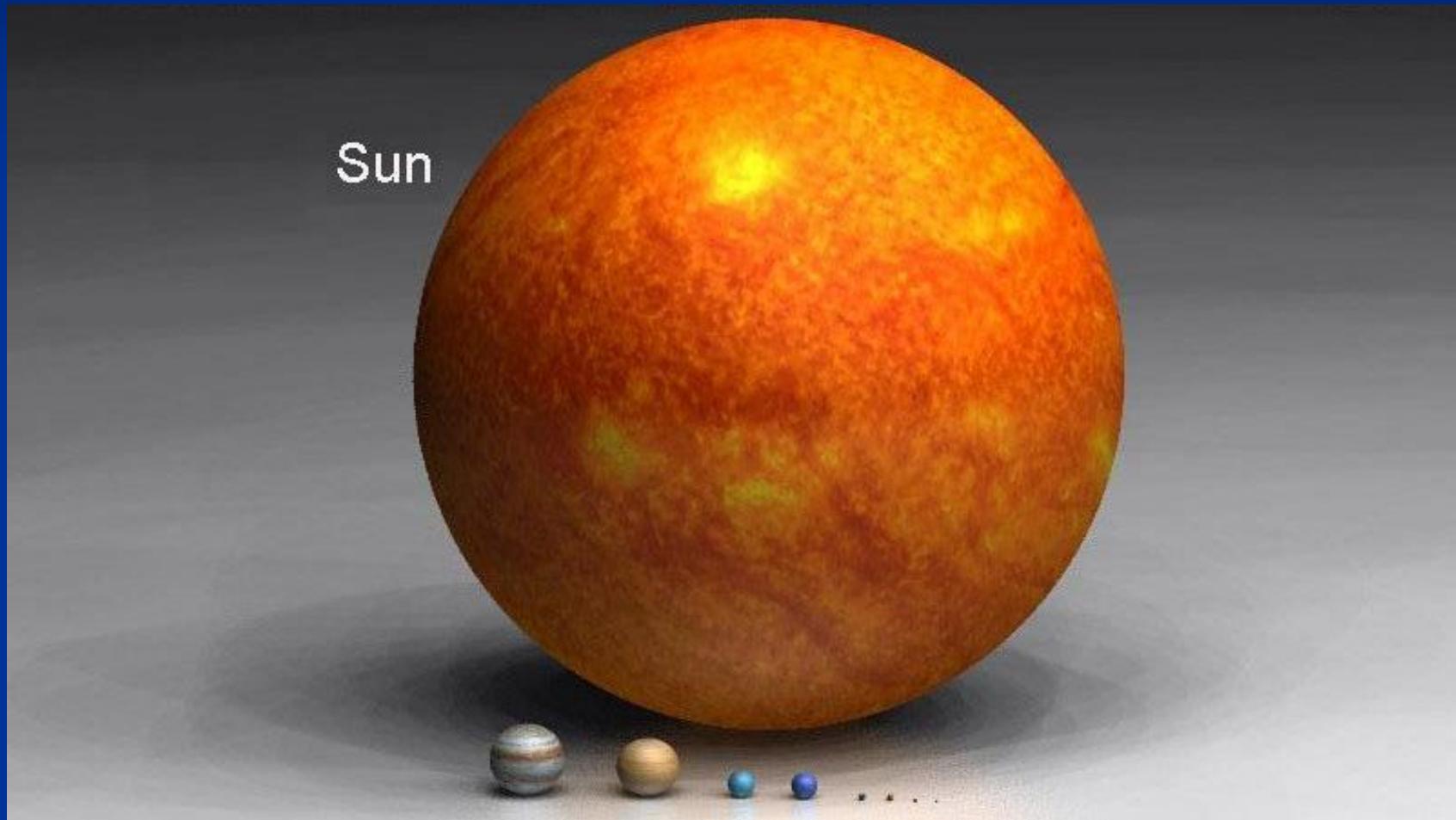
The Size of the Planets



The Size of the Planets



The Size of the Planets



Poplar Creek Golf Course

Pluto

Neptune

Uranus

Saturn

Jupiter

Mars

North Shoreview
Montessori
min drive - home

SHOREVIEW

Tabla Indian Restaurant - SM

Outer Planets

A Boeing 747 Cruising at 550 MPH.

- To travel from San Francisco to New York takes about 6 Hours.
- To travel all of the way around the Earth takes less than 2 days.
- To get from Earth to the Sun would take 18 Years!
- To get from the Sun to Pluto would take 700 Years!
- To get to the nearest star would take 4,718,913 years





How Big is One Billion?

- A Rich Uncle leaves you One Billion Dollars
- He puts it in a trust that will pay you \$10,000 per day.
- How long will the money last?

**IT WOULD LAST
278 YEARS AND 288
DAYS!**

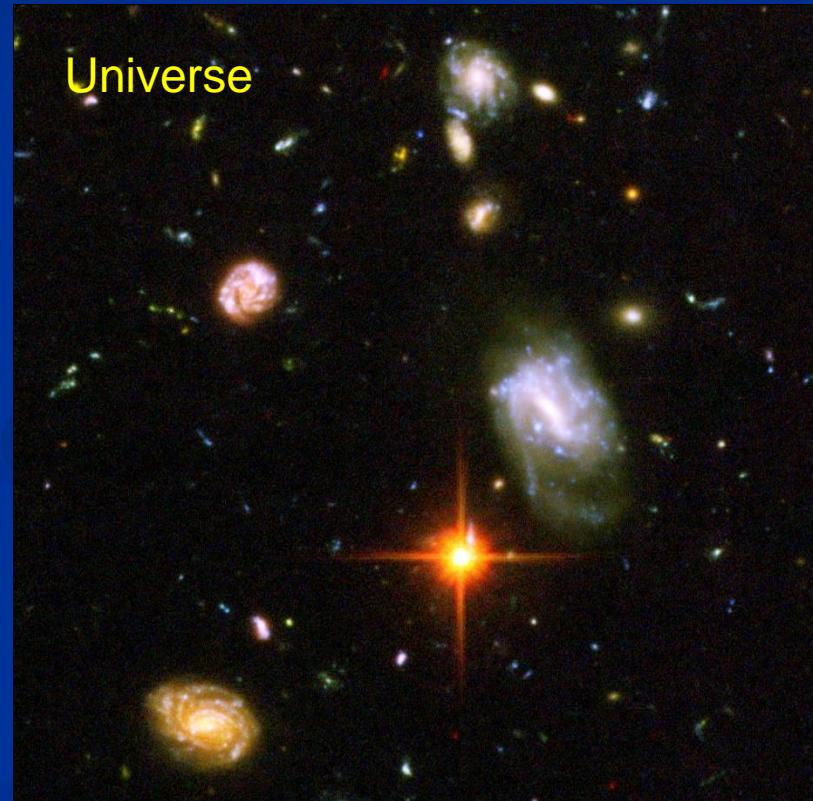
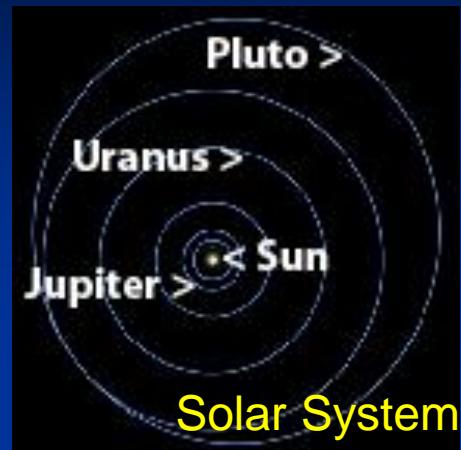
What is a light year?



- A light year is the distance light travels in one year.
- It is a distance measure, not a time measure.
- Light travel at 186,000 Miles Per Second.
- Light can go around the world more than 7 times in one second.

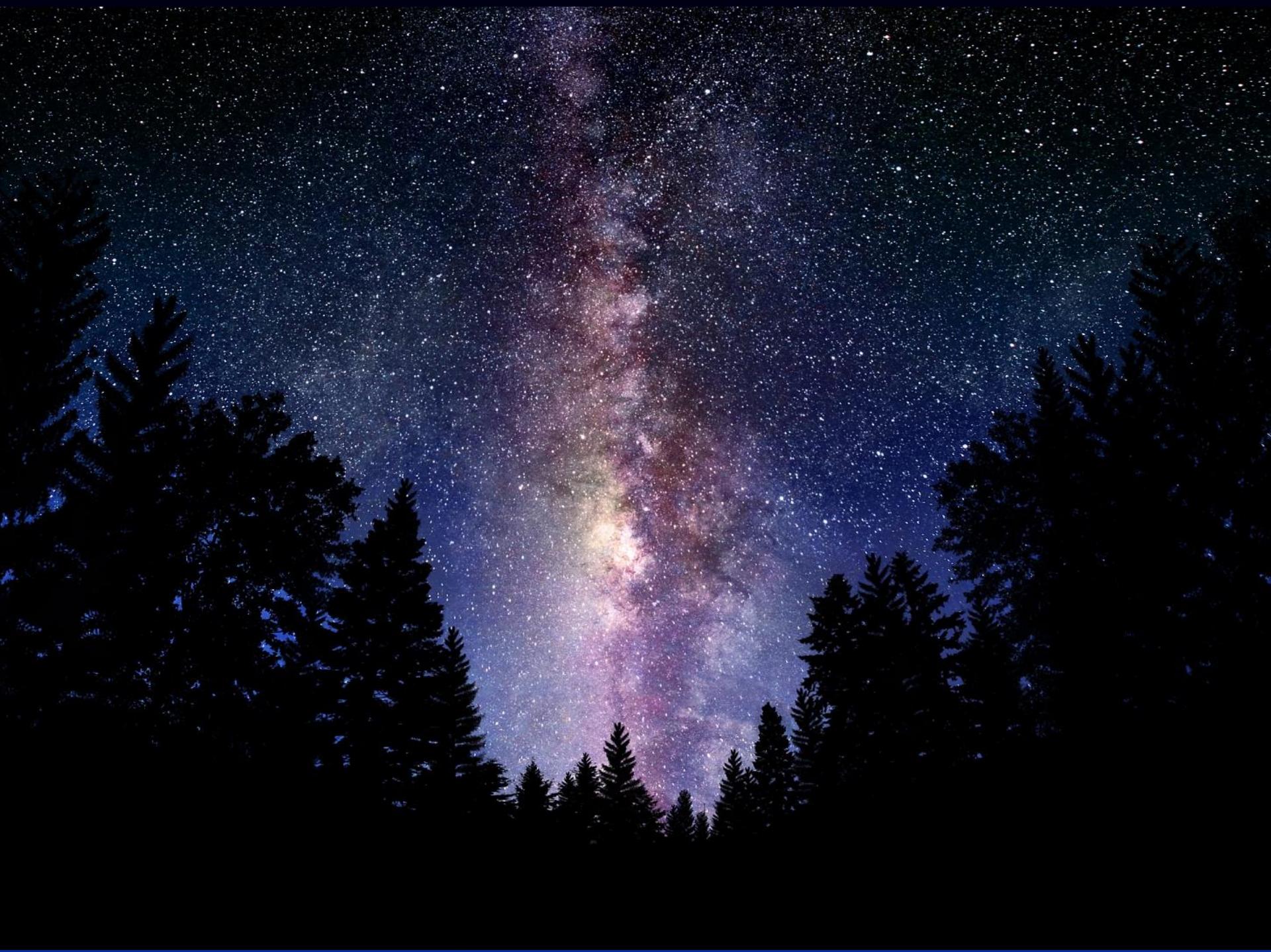
A LIGHT YEAR IS
5,878,499,810,000
MILES

The Galaxy

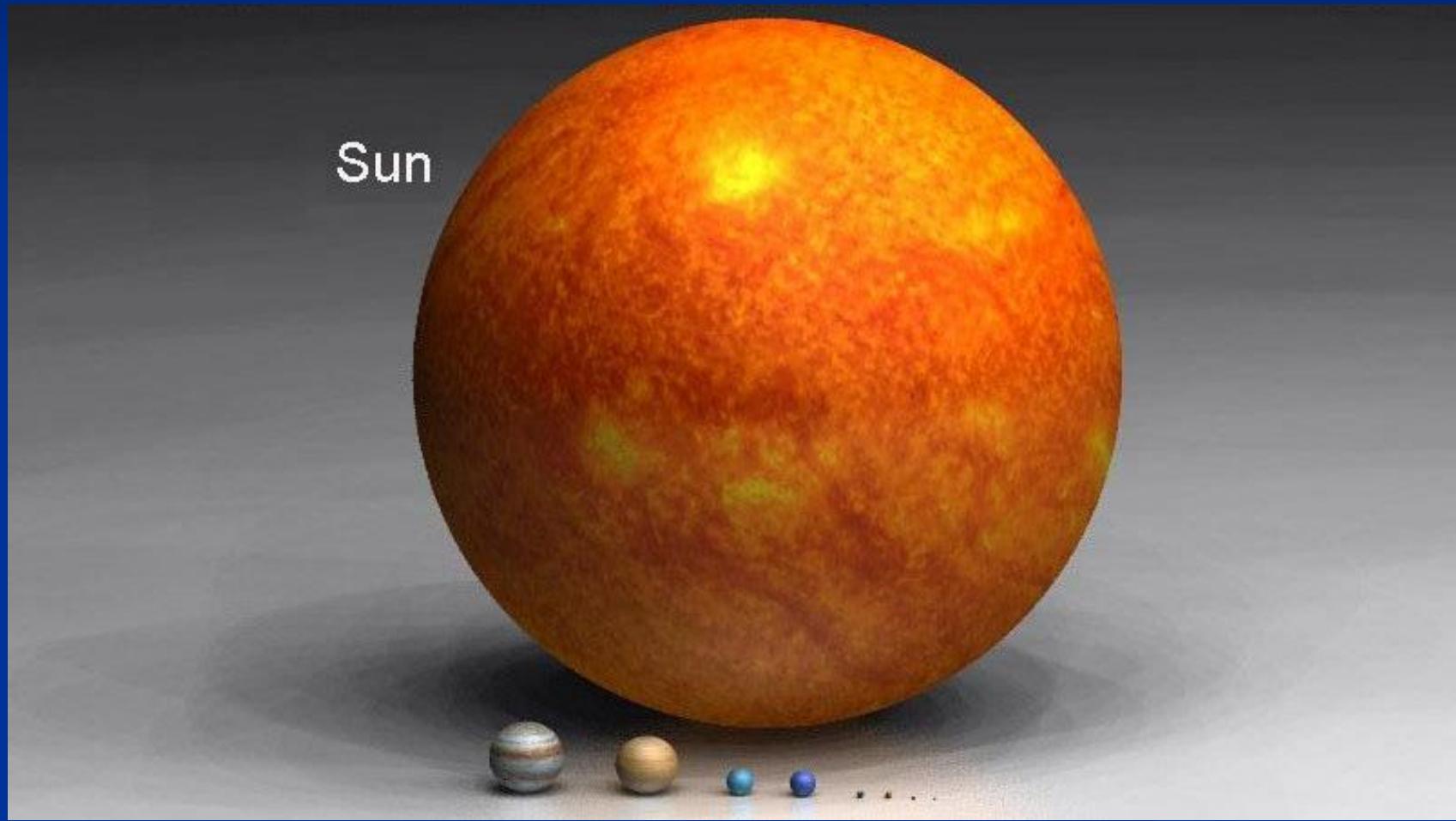


Milky Way Galaxy

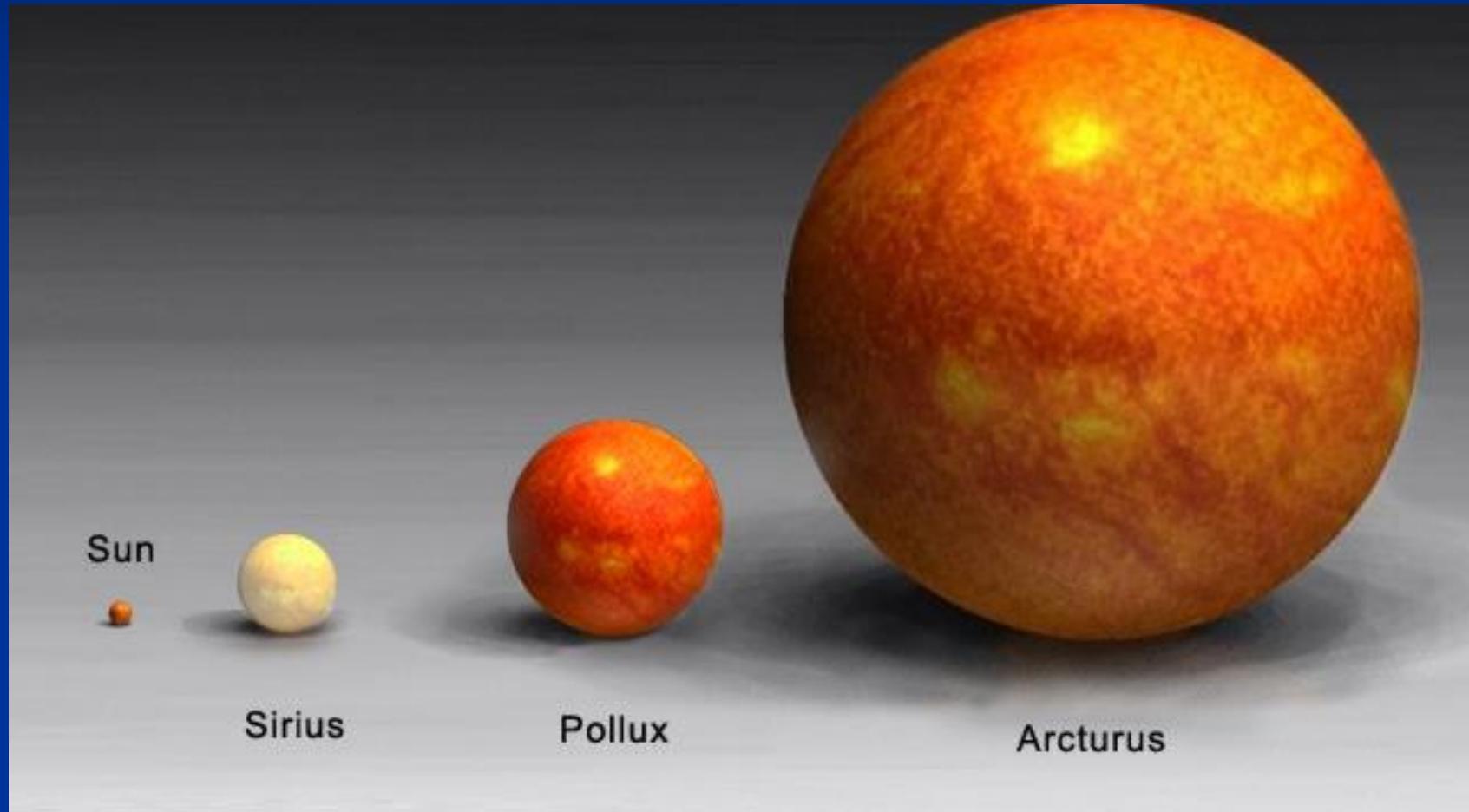




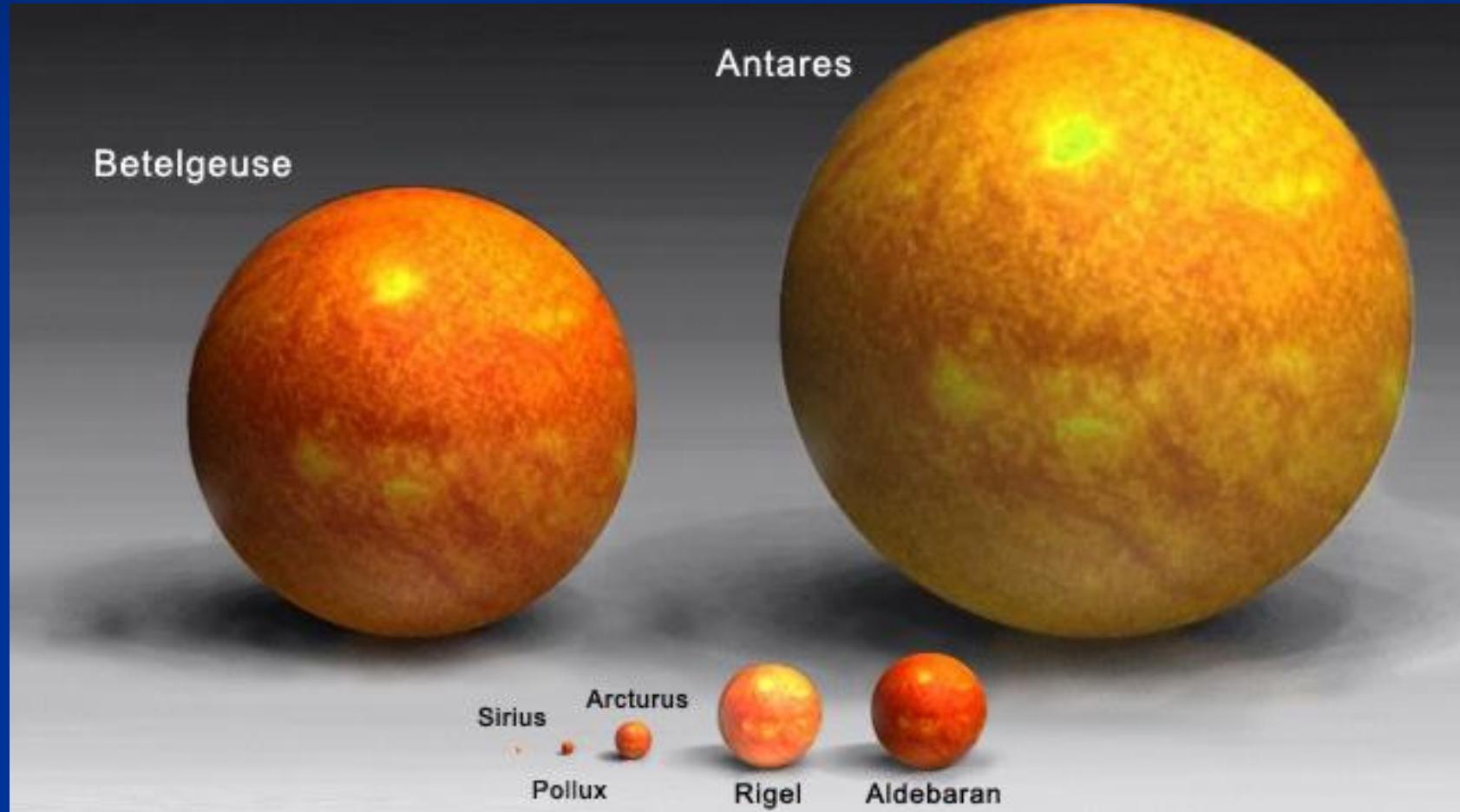
The Size of the Sun



The Size of the Sun



The Size of the Sun

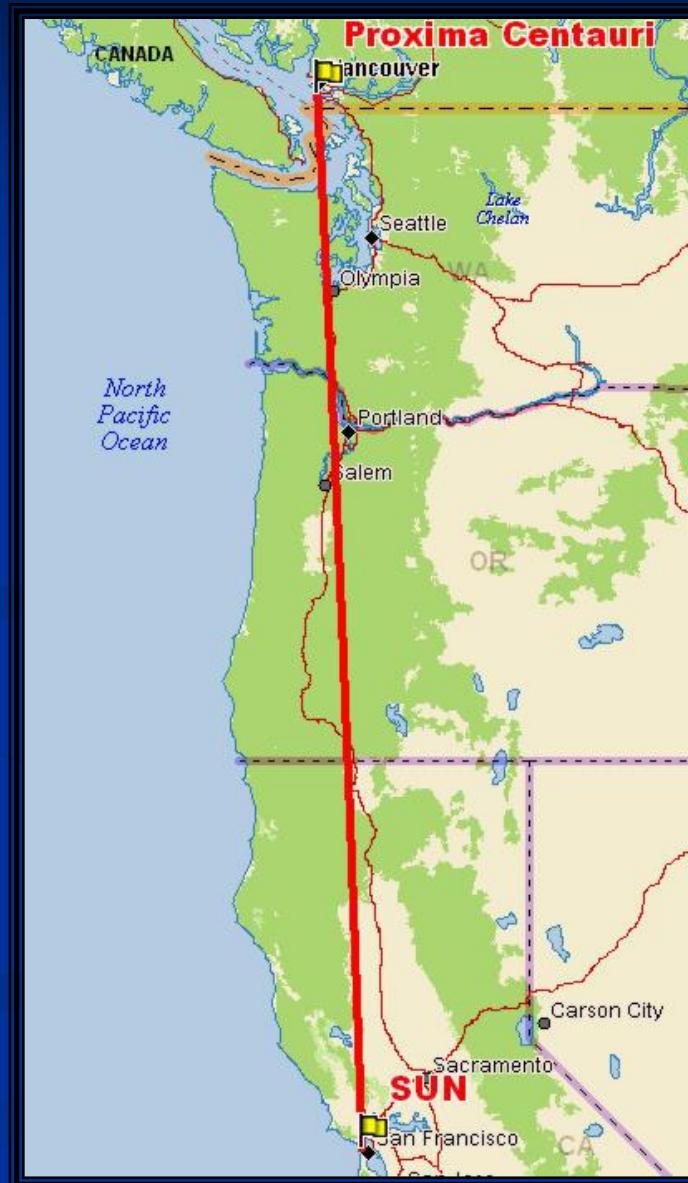


The Distance Between Suns

Shrinking the sun to the size of a golf ball.



The distance to the nearest star (Proxima Centauri) would be 770 miles.



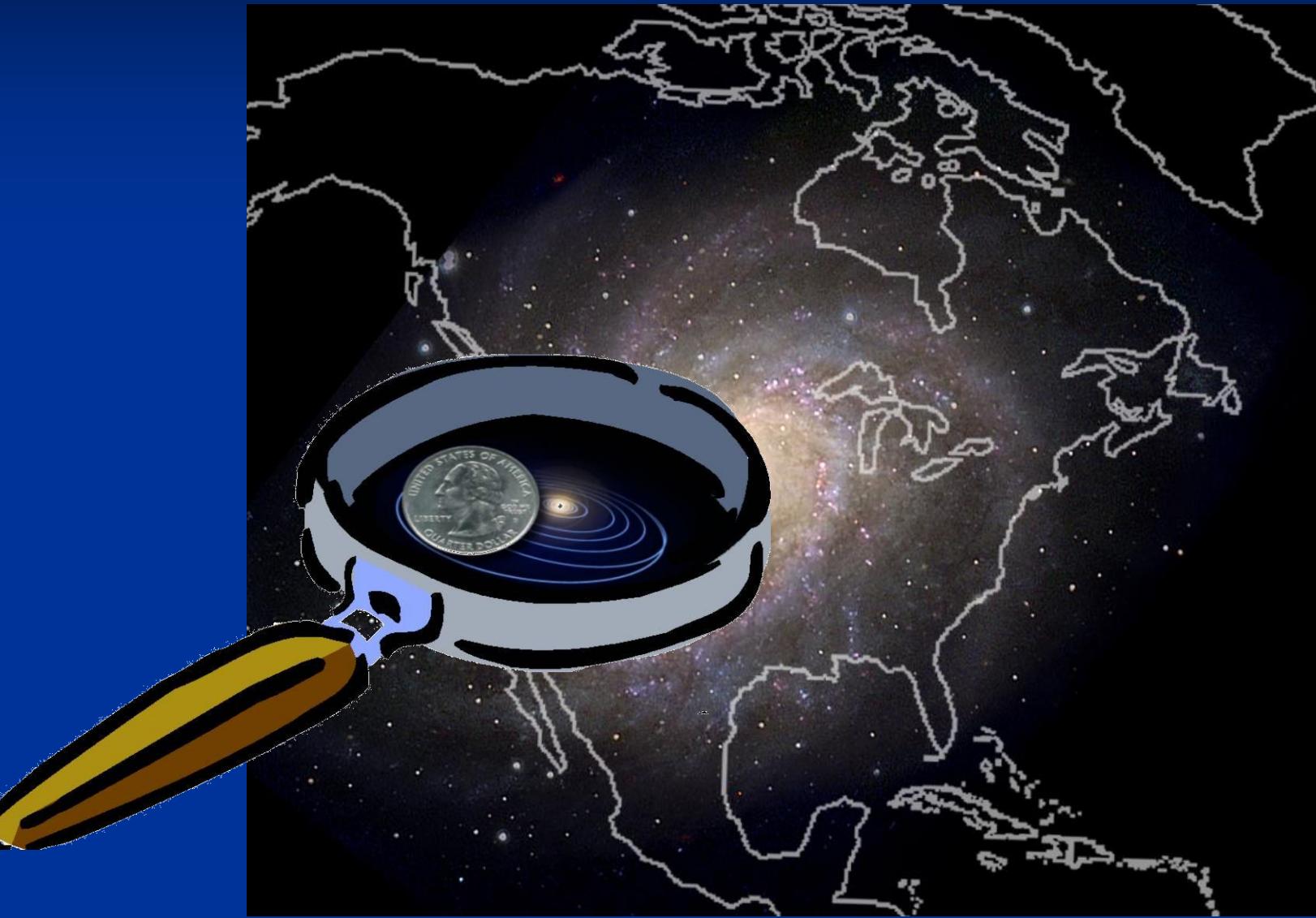
The Size of the Galaxy

Imagine the Solar System so small that that distance from the sun to Pluto is the diameter of a quarter.

THEN...



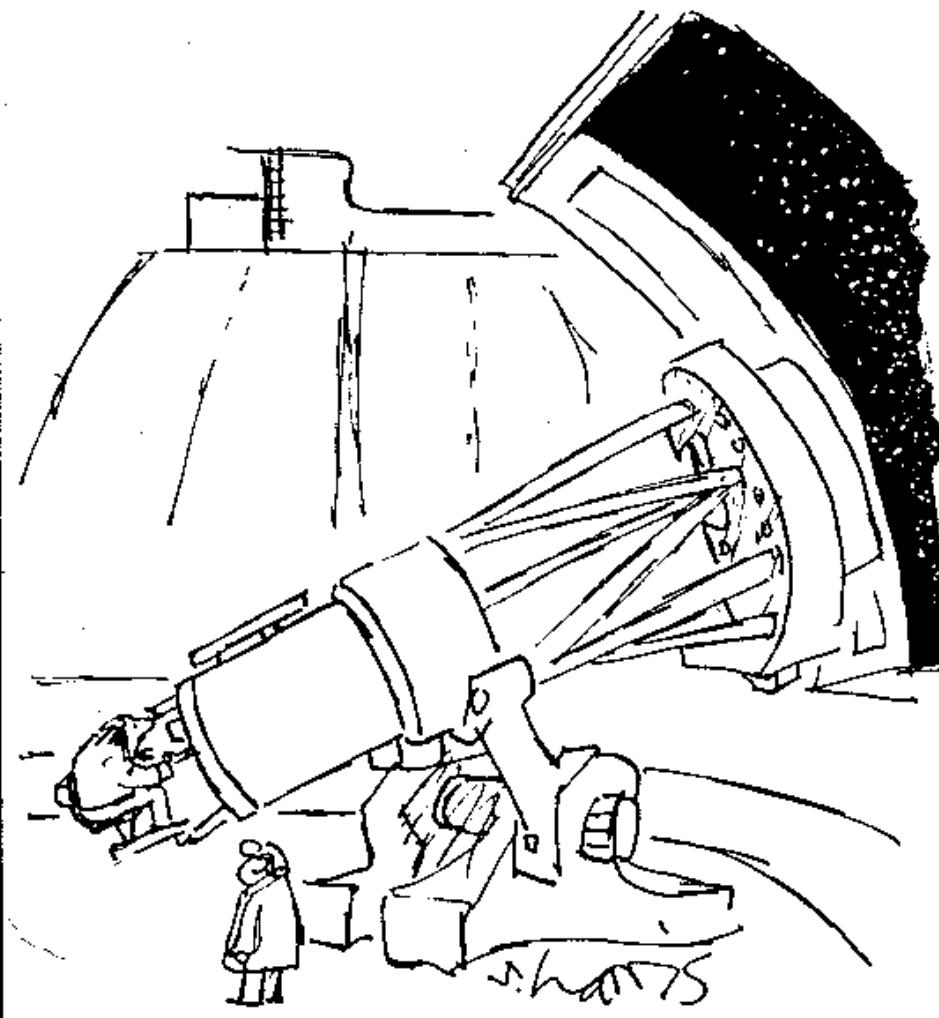
...the Galaxy would be the size **of** North America





How Many Stars in our Galaxy?

200 BILLION Stars!!!



"Let's see, now ... picking up where we left off ... one billion, sixty-two million, thirty thousand, four hundred and thirteen ... one billion, sixty-two million, thirty thousand, four hundred and fourteen ... "

How Many Stars in our Galaxy?

- ❖ Take a ~~Football Field~~ but as many seeds on the
- ❖ Build a 4 foot ~~oval~~ ~~around~~ galaxy
- ❖ Fill the field with birdseed

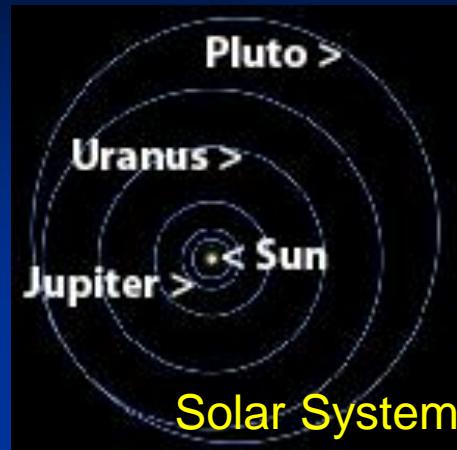


200 BILLION Seeds

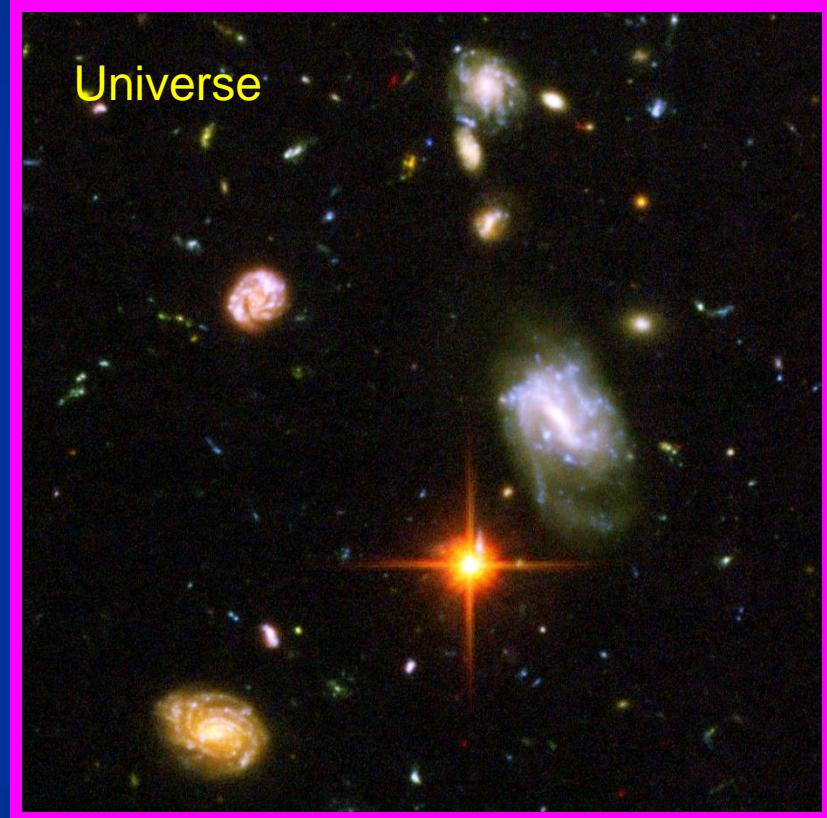


200 BILLION Stars

The Universe



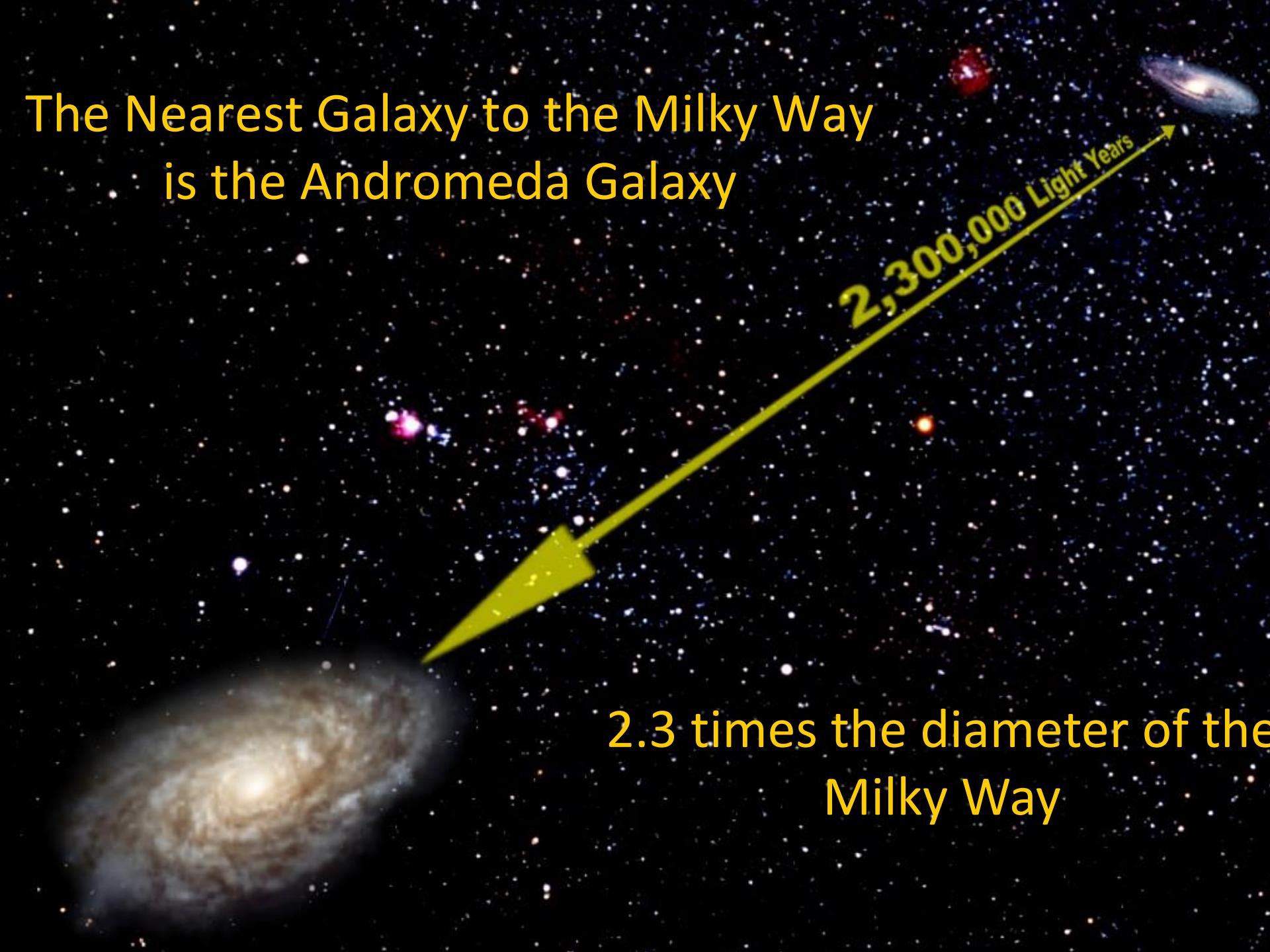
Galaxy





M31 Andromeda Galaxy 8 Feet

The Nearest Galaxy to the Milky Way
is the Andromeda Galaxy



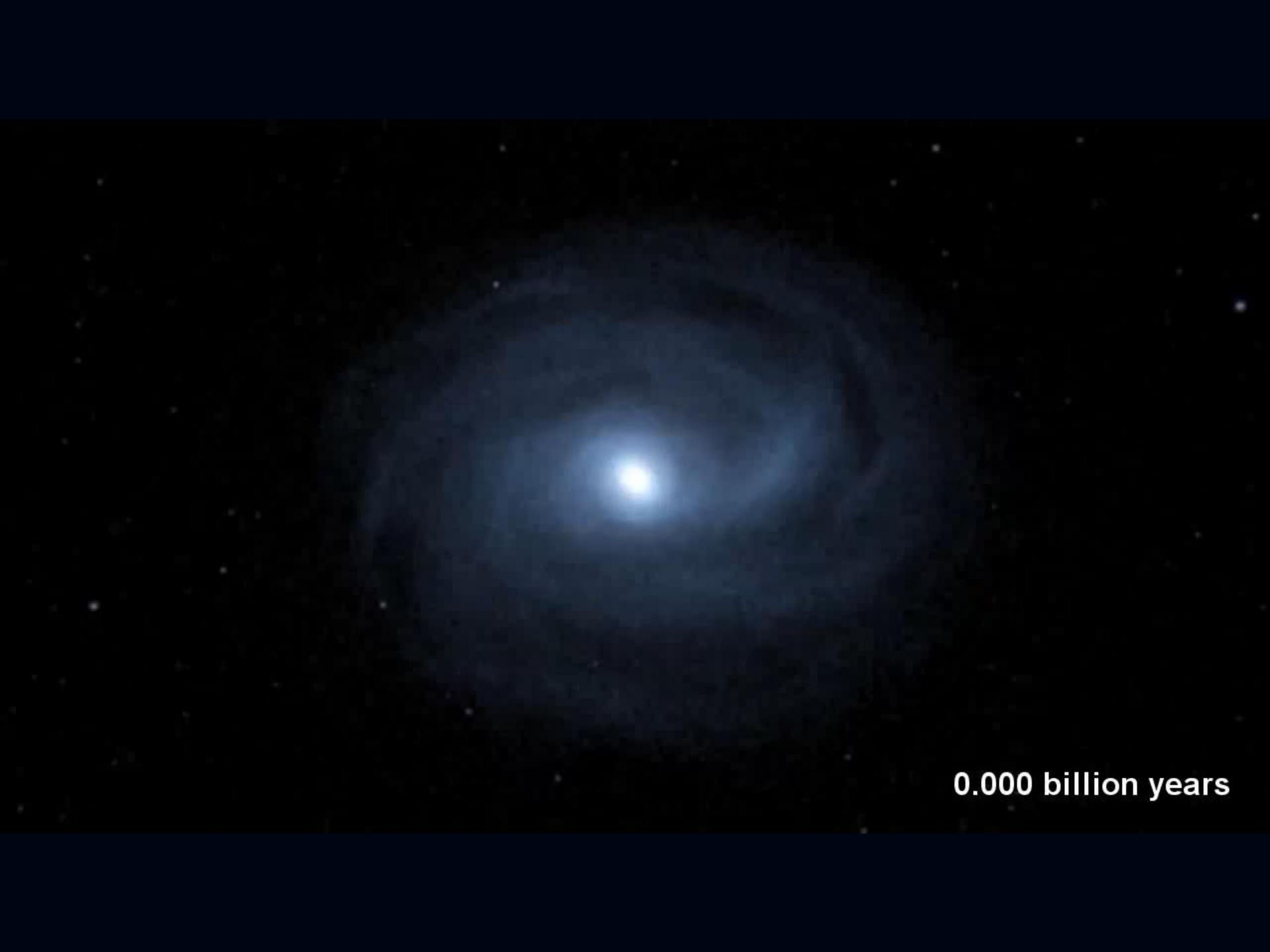
2,300,000 Light Years

2.3 times the diameter of the
Milky Way

Andromeda and Milky Way Galaxies will collide

- Hurtling together at 245,000 MPH
- Will Collide in about 4 Billion Years
- Collision will take billions of years
- Earth will have been burned up by the Sun by then
- Stars will not collide - there is too much distance between them.



A dark, star-filled space background with a bright central star.

0.000 billion years

M33 Pinwheel Galaxy
8 Feet



M81
16 Yards



M33 Whirlpool Galaxy
50 Yards



M104 Sombrero Galaxy
67 Yards



How Many Galaxies in the Universe?

There are About as many galaxies
as there are stars in the Milky Way
or seeds on our football field!!!





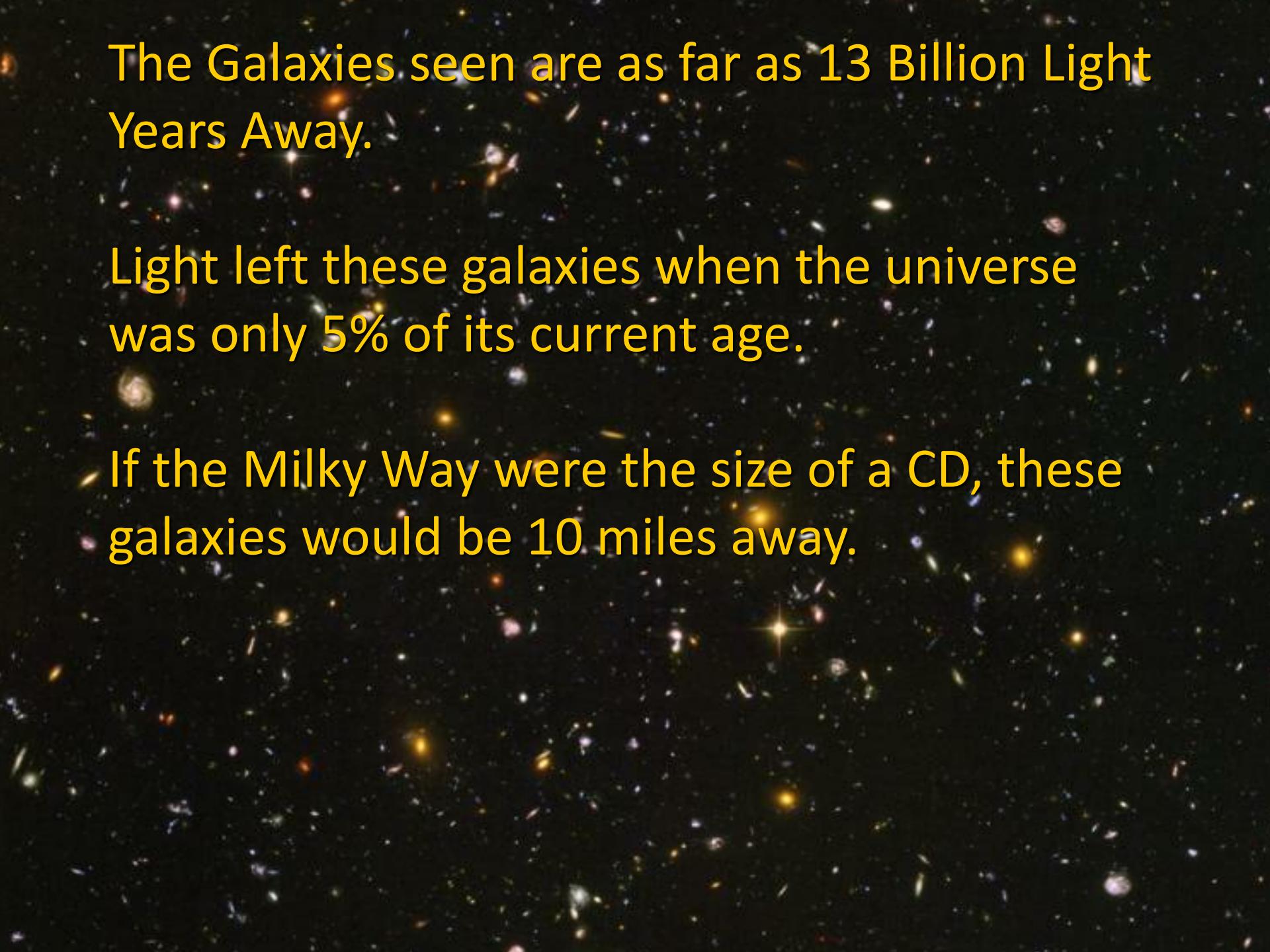
Farthest Man Has Seen



Hubble Deep Field Image

- Small part of the sky
- Few known stars
- 1,000,000 Second Exposure (11+ Days)
- Taken Sept. 24, 2003 to Jan. 16, 2004

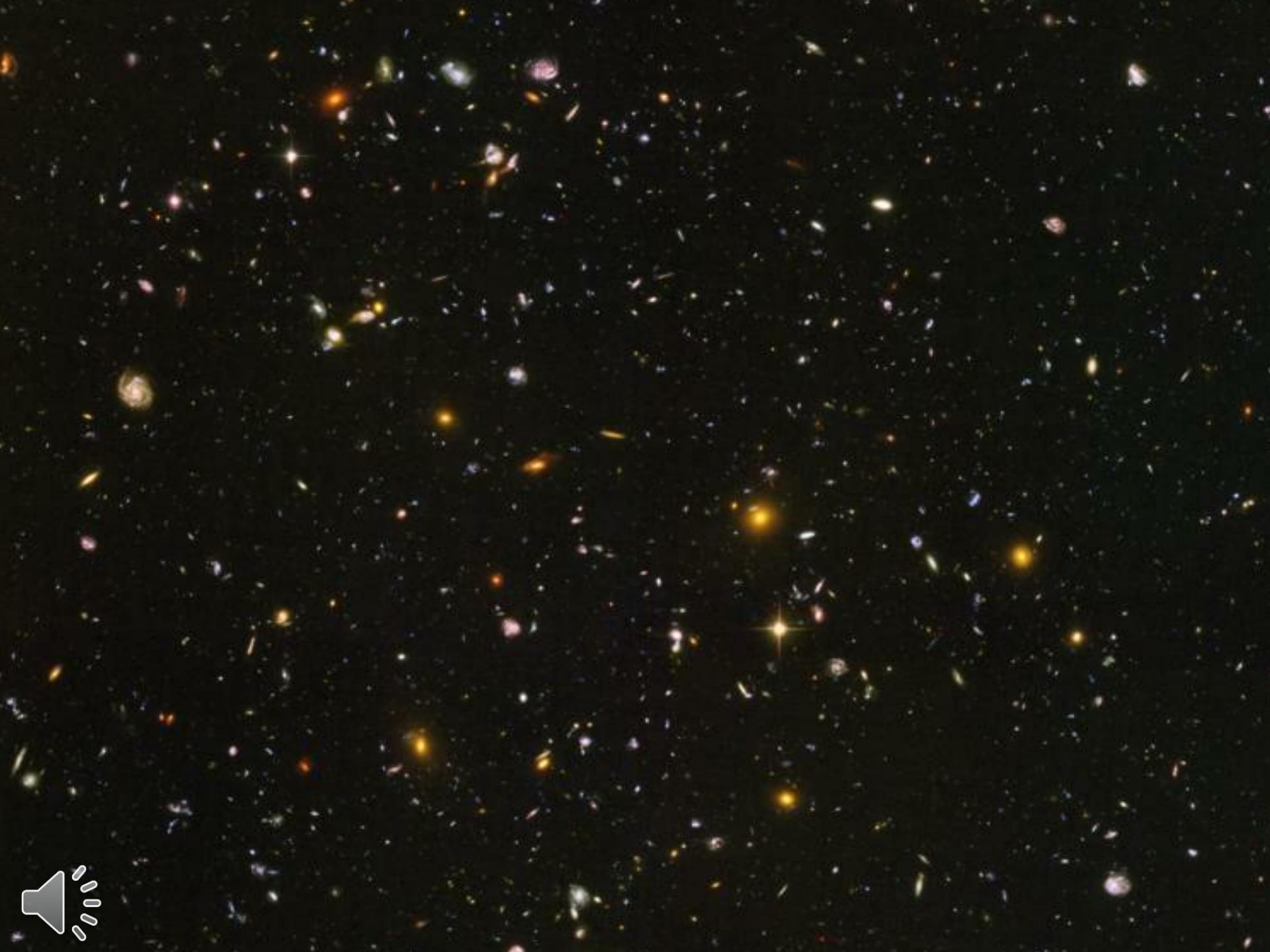


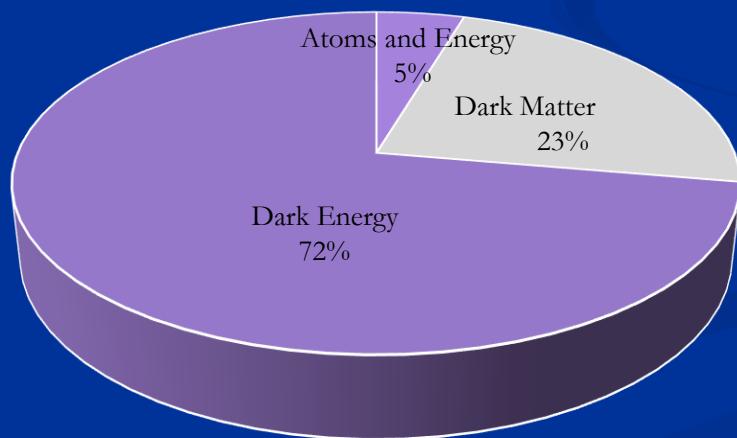
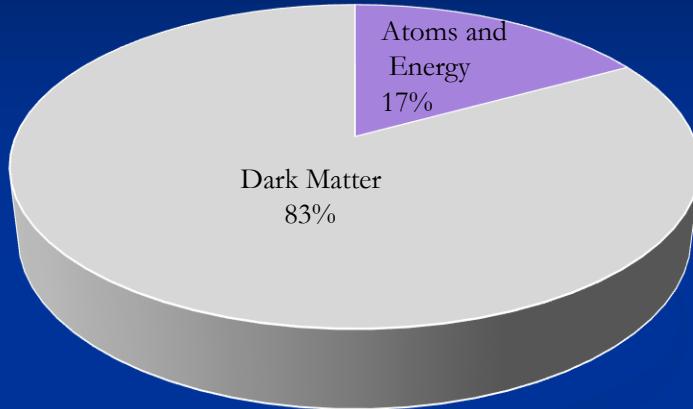
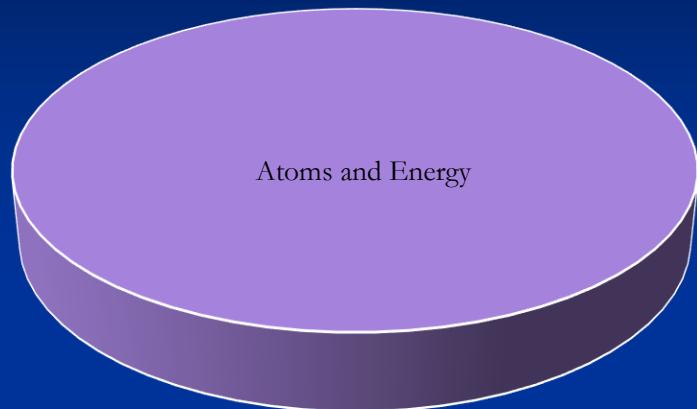


The Galaxies seen are as far as 13 Billion Light Years Away.

Light left these galaxies when the universe was only 5% of its current age.

If the Milky Way were the size of a CD, these galaxies would be 10 miles away.









Questions?