The Universe

Chapter 25.3

The Big Bang Theory

At one time, the universe was one dense, hot, and supermassive ball.

Then, around <u>13.7 billion</u> years ago, a violent explosion occurred, and hurled the material in all directions Don't trust an atom.....they make up everything!

Eventually the universe cooled down enough for <u>atoms</u> to form.

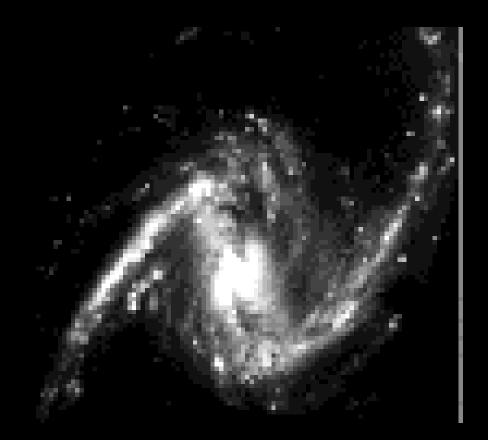
<u>~ 200 million years later:</u> Gases condensed and began to form the stars and galaxies we now

observe.

Types of Galaxies • <u>spiral</u>: bright center of stars with arms <u>spiraling out</u> Milky Way was believed to be a spiral

NASA

 <u>barred spiral</u>: have a group of stars making a <u>bar through</u> the center



<u>elliptical</u>: shape ranges from spherical to oblong

-<u>no arms</u>

-<u>60%</u> of all galaxies are elliptical



<u>irregular</u>: small, faint stars spread out unevenly with <u>no</u> <u>pattern</u>



The Milky Way Galaxy= <u>Barred</u> <u>Spiral</u>

- There may be more than <u>100 billion</u> stars in the Milky Way!
- It is about <u>100,000 light years</u> wide and about <u>10,000 light-years</u> thick at the nucleus!
- It has at least <u>three</u> distinct spiral <u>arms</u>.
- Our solar system is about <u>30,000</u> light years from the center!
- Our solar system orbits the nucleus about every <u>200 million years!</u>

Milky Way facts

Old Data= Milky Way was a 4 armed <u>"spiral"</u> New Data= the Milky Way is a 2 armed <u>"barred spiral"</u>

Perseus & Scutum-Centaurus are wrapped around a bar of stars.

The Sun is located between the Sagittarius and Perseus arms, near the partial arm called the <u>Orion Arm or Orion Spur.</u>

Milky Way = Barred Spiral

