Four Kinds of Galaxies

By Cindy Grigg

[1] *Caption: Picture shows two galaxies colliding. Photo credit: NASA Spitzer Space Telescope, JPL-Caltech*

[2] A galaxy is a huge group of stars, gas, and dust held together by gravity. Larger galaxies may have as many as a trillion stars. A galaxy may be one hundred thousand light years or more across. A light year is the distance that light travels in one year, about six trillion miles. Galaxies may be found alone in space or in large groups. A large group of galaxies is called a "supercluster." A supermassive black hole is thought to be at the center of every galaxy. This largest type of black hole is thought to contain millions or maybe even billions of times the mass of our sun.

[3] Galaxies attract each other. Some of them collide. The collisions cause the birth of new stars. Galaxies come in different shapes. They are usually divided into four general shapes.

[4] Some are spiral galaxies. A spiral galaxy has a small, bright center, or nucleus, with sweeping arms that spiral outward. You might think a spiral galaxy looks like a giant pinwheel.

[5] Another kind is a barred spiral galaxy. This galaxy has arms that extend sideways in a short straight line (a bar) before spiraling outward. Both kinds of spiral galaxies are mostly flat. Our Milky Way Galaxy is a barred spiral galaxy. It has two main arms. It is believed to contain between two hundred billion and six hundred billion stars. Scientists have estimated that about seven new stars are born in the Milky Way Galaxy each year.

[6] Some galaxies are elliptical. They have no obvious arrangement of stars. You might think an elliptical galaxy looks like a flattened ball. Elliptical galaxies are made up of older stars and little gas and dust.

[7] The fourth kind of galaxy is the irregular galaxy. Irregular galaxies are usually fairly small and do not have a symmetrical shape. They do not look like the other kinds of galaxies, and they do not even look like each other! Many of them orbit larger galaxies and contain young stars.

[8] Galaxies are groups of stars, gas, dust, and other matter that are held together by gravity in space like islands of matter in a black sea. They take up vast areas of space. They hold enormous amounts of matter and continually recycle it with the death and birth of stars. Our galaxy is just one of hundreds of billions of galaxies in the universe.

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Four Kinds of Galaxies

1. What is a galaxy?

_____

_____

2. What is thought to be at the center of a galaxy?

(A) A planet
(B) A sun
(C) A black hole
(D) A comet

3. What words in the story help you understand the meaning of "supermassive" in paragraph 2?

(A) Held together in space by gravity
(B) Millions or billions of times the mass of our sun
(C) Gases, dust, and other matter
(D) Other matter found in galaxies

4. According to the story, irregular galaxies contain young stars. What might you infer about the shape of galaxies?

(A) The shape of galaxies has no relationship to their age.
(B) Galaxies form a specific shape when the first stars are born and keep that shape throughout their life cycle.
(C) It may take a very long time for a regular shape of galaxies to form.

5. Galaxies are what shapes? List them here:

_____

_____

6. Our Milky Way Galaxy is which shape?

_____

_____

7. How many stars are believed to be in our Milky Way Galaxy?

(A) One - our sun
(B) 200-300 million
(C) 500-1,000
(D) 200-600 billion

8. No new stars have formed in the Milky Way Galaxy in recent history.

(A) False
(B) True