

Chapter 16: Build a Galaxy

Student Worksheet

Objective:

Use a Milky Way Galaxy model to demonstrate knowledge of *galactic structure*, *galaxy types*, and *star forming regions*.

Engage:

Imagine being asked to draw a picture of yourself without ever having looked in a mirror. You would be well equipped to draw pictures of others, but there would be a great deal of *you* that you would be unable to render. This predicament is quite similar to the one galactic astronomers face when trying to study the Milky Way. Telescopes have a great view of our extragalactic neighbors, but we cannot zoom out for a bird's eye view of ourselves. Despite the setbacks, astronomers have come to learn quite a bit about our home galaxy by comparing what we know about the Milky Way to what we know about other galaxies and then making inferences.

Think back to the self-portrait problem. In the space below make a list of techniques you could use to draw parts of yourself you cannot see.

Introduction:

The Milky Way galaxy is a barred spiral galaxy with a diameter of about 100,000 light years. Spiral galaxies are big, flat discs with a bulge in the center. The Sun is located about 26,000 light years from the center of the galaxy. The center of the galaxy has a bulge that is full of tightly bound stars and home to a supermassive black hole. Our galaxy has spiral arms extending from the bulge. Stars form in the spiral arms, while older redder stars are located between the spiral arms.

Your Task

- Using two paper discs, glue, glitter of a variety of colors, and cotton balls make a model of our galaxy based on the information above.
- Mark the location of our Sun.

5. Look at the Hubble tuning fork. How would you classify the spiral galaxy you made?

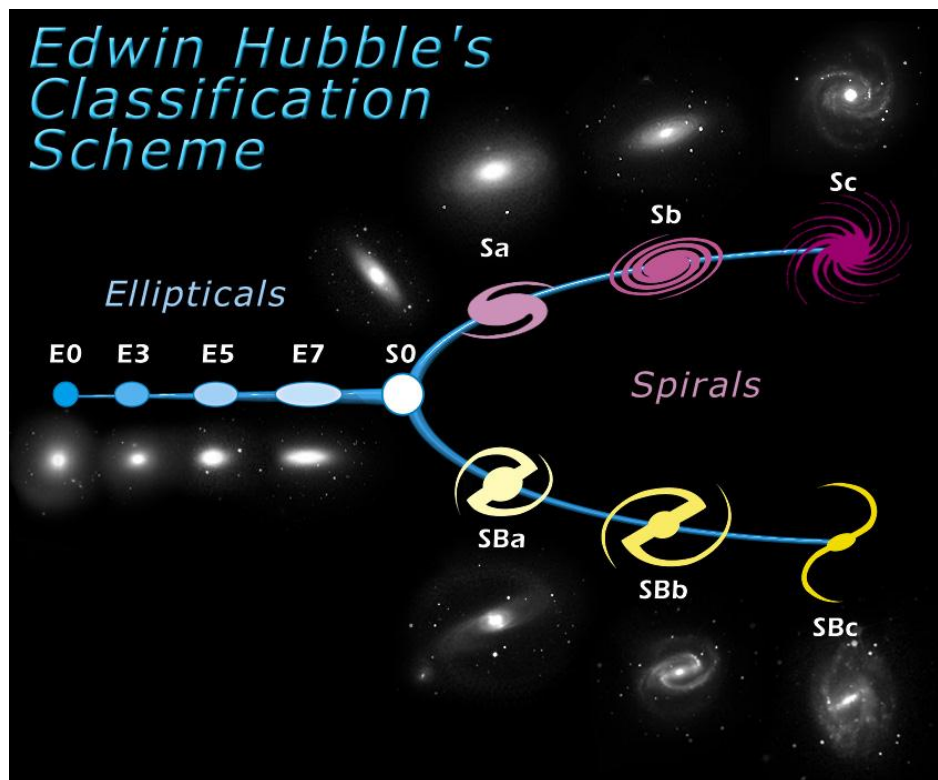


Figure 1

NASA/ESA

Extend:

- Look at the Milky Way Project by Zooniverse. How can you take part in real astronomy by spotting bubbles and clouds in the galaxy?
- Search *Photopic sky survey* to get an amazing view of our galactic home.