



Expedition to the Expanding Universe – Moving Beyond the Milky Way

Don't forget to record data and observations as you work through this activity. All of the questions and reminders from the activity are listed in order below.

1. Before astronomers could even consider the idea of an expanding universe, they had some important discoveries to make about our galaxy itself. Although astronomers could see that the fuzzy blobs they called nebulae existed in the night sky along with the stars, they knew little about them. Astronomers were, however, able to map the location of these objects. If stars and nebulae (now called galaxies) are both objects within our own Milky Way, what might we expect to find when we sample how they are distributed across the sky?

2. What is the question this investigation is trying to answer?

3. Depending upon whether or not you are working with a group, you may have a large or small data table. Create a chart that records the RA and Dec of each sample location and the number of galaxies and stars you counted. Display that chart here or include separate sheets.

4. Use your chart to create one or more graphs that will help you answer your research question.
5. Observe and analyze your data:
 - a. What is the range of values you reported across all the RA and all the Dec values in your samples?

 - b. How are the values distributed across the RA? Dec? Do you observe a pattern in the data points on your graph, or can you calculate a statistic?
6. By reviewing your graphs and statistics can you answer your research question? Explain. What conclusions can you draw from your data?

7. How does this information support the idea that the nebulae were actually other galaxies residing outside the Milky Way?