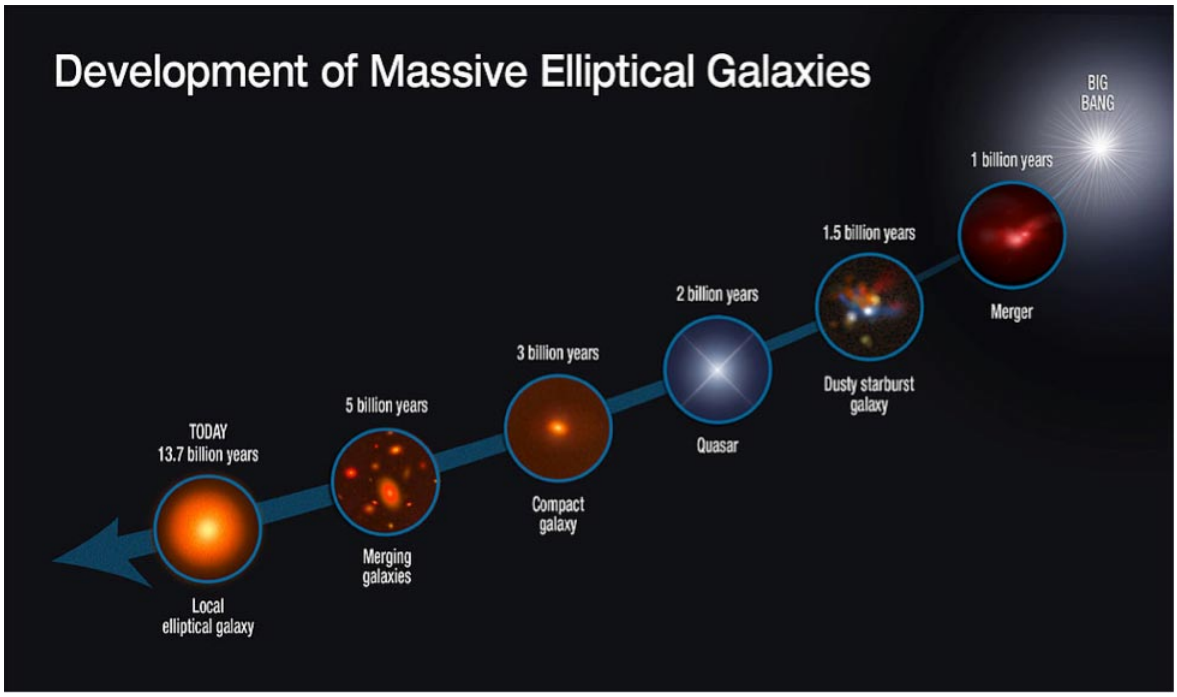
13.15: The Ages of Galaxies and What that Reveals

First, how did galaxies form? That concept is not as well understood. One current hypothesis is that just after the beginning of the Universe, there was a lot of hydrogen, H2, and helium, He; the simplest and first elements formed. The hydrogen and helium was probably not a uniform distribution of H2 and He, but in clumps. There was an initial expansion of the H2 and He and eventually gravity slowed the expansion, forming **Protogalactic clouds**. Stars and thus galaxies formed out of these Protogalactic clouds. The leading galaxy-formation hypothesis holds that the Milky Way and other galaxies began small and grew bit by bit for the most part, gravitationally acquiring intergalactic gas and dust and merging with galaxies in their immediate neighborhood.

A 2010 study suggests that several large and seemingly disparate chunks of the galaxy formed at the same time from the collapse of a single blob of gas and dust.



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What type of galaxy formed first?

What we currently see as Elliptical Galaxies with reddish stars. Think about stellar color as an indicator of age. And think back to globular clusters as a retirement home for stars – red stars.