

# GALAXIES

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Image Credit: National Geographic

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# What are Galaxies?

- A galaxy is a gravitationally bound system of stars, stellar remnants, interstellar gas, dust, and dark matter.
- The word galaxy is derived from the galaxias, literally "milky", a reference to the Milky Way.
- The Hubble telescope reveals an estimated 100 billion galaxies in the Universe.
- Image Credit: space.com



# Formation of Galaxies



# Formation of a Galaxy

Galaxies are thought to begin as small clouds of stars and dust swirling through space. As other clouds get close, gravity sends these objects careening into one another and knits them into larger spinning packs. Subsequent collisions can sling material toward a galaxy's outskirts, creating extensive spiral arms filled with colonies of stars.



# Formation of a Spiral

- 1. Come Together** - Clouds of dust, gas and stars are pulled together by gravity.
- 2. Turn Around** - Gravity makes the collapsed clouds rotate. New stars form and rotate around the centre of the mass.
- 3. Shrink Down** - The spinning action flattens the cloud, forming a galactic disc of dust, gas and stars.
- 4. Taking up Arms** - The disc continues to rotate, causing spiral arms to form.

# The 3 main types of Galaxies

Type of galaxy :



Spiral



Elliptical



Irregular

Image Credit: Teaching science Web

# Spiral Galaxies

- Spiral galaxies form a class of galaxy originally described by Edwin Hubble in his 1936 work *The Realm of the Nebulae* and, as such, form part of the Hubble sequence.
- Most spiral galaxies consist of a flat, rotating disk containing stars, gas and dust, and a central concentration of stars known as the bulge.

# Elliptical Galaxies

- An elliptical galaxy is a type of galaxy with an approximately ellipsoidal shape and a smooth, nearly featureless image.
- They are one of the three main classes of galaxy.

# Irregular Galaxies

- An **irregular galaxy** is a **galaxy** that does not have a distinct regular shape, unlike a spiral or an elliptical **galaxy**.
- **Irregular galaxies** do not fall into any of the regular classes of the Hubble sequence, and they are often chaotic in appearance, with neither a nuclear bulge nor any trace of spiral arm structure.

# Some Examples of Galaxies in the Universe



# **7 Galaxies**

- 1. Milky Way Galaxy**
- 2. Andromeda Galaxy**
- 3. Whirlpool Galaxy**
- 4. Messier 81**
- 5. Sombrero Galaxy**
- 6. Triangulum Galaxy**
- 7. Messier 82**

Thank  
you