

Universe

The Universe

- The **universe** contains all the matter and energy that has ever existed. The universe includes all of space and time.
- The idea that more than one universe exists is called the **multiverse hypothesis**.
- **Cosmology** is the study of the universe.

Study Tip

Everything that exists in the world is **unified** inside the **universe**.

Evolution of Human Understanding of the Universe

- The ancient Greeks believed that the Earth was the center of the universe, and their model of the universe contained five planets, the Earth, the Sun, the Moon, and a sphere which had stars attached to it.
- Galileo's telescope allowed people to realize that the Earth is not the center of the universe.
- An astronomer named Edwin Hubble discovered the Andromeda Nebula, which was 2 million light years away.
 - This object was at a much farther distance than anything else that had been previously measured. Hubble realized that objects that were thought to be **nebulas**, or clouds of gas, were actually collections of stars that we now call **galaxies**.
 - Hubble demonstrated that the universe was much larger than the size of our galaxy, and that the universe is much bigger than anyone had ever imagined.

Concept Check

- What is a universe? What does it contain?
- How did our understanding of the universe evolve over time?