

1. Write a description about the formation of the Solar System and Universe.

Scientists speculate that the universe originated because of the Big Bang approximately 13.8 billion years ago. Everything that exists now originated from an incredibly small, hot point which began expanding. Over time, these cooled and tiny particles of matter clumped together to form stars and galaxies. Our Solar System formed out of these galaxies, as a massive cloud of gas and dust slowly collapsed. The center of this cloud became the Sun with a cloud of smaller particles forming into planets and moons orbiting around it.

Some philosophers, along with some ancient thinking traditions, do not believe that the universe started with the Big Bang. Rather, they would say that the universe cycles; it settles, then creation rises again. From this perspective, the Big Bang might have occurred many times before. These two perspectives provide insight on how things became how they are.

One thinking tradition explains how energy expands and gives rise to life, while the other reminds us that the cosmos might not end; it simply renews itself. Indian astronomy has traditionally viewed time from this perspective, seeing time as a rhythm of change, rather than a straight-line series of events. Both perspectives help show how science and philosophy can meet to describe the sky all people share.

2. Write a short note on the Oumuamua.

Oumuamua was a strange visitor that entered the Solar System in 2017. It arrived from very near and was the first tracked object from another planetary system to enter our system. The name Oumuamua means "a messenger from afar arriving first" in Hawaiian language. Scientists quickly observed it was moving too quickly to belong here, and its trajectory indicated it came from very deep interstellar space. How so? Usually asteroids become bound to the sun or nearby planets but it continued its path in an almost straight path, hence proving that it originated from an entirely separate solar system.

Oumuamua was special due to its unique shape and strange behavior. It looked very elongated, almost like a stretched thin rock, but it didn't behave like one. It resembled a cigar. It did not have a glowing tail like a classic comet would, yet while moving, it did slightly change speeds.

Oumuamua also showed us all researchers that surprises exist in the universe. Oumuamua was a skillful indicator of what can travel between stars and arrive in a moment's notice. Many research groups about Oumuamua will talk about how these types of visitors come about and their motion. It opened a new aperture for interstellar travel professionalism, understanding how materials wander and drift through the many galaxies.