



## **Participant Discussion Guide for *Cosmos: A SpaceTime Odyssey***

### **Episode 3: "When Knowledge Conquered Fear"**

The creators of *Cosmos: A SpaceTime Odyssey* state that their aim is to promote scientific literacy. Because we know that many who watch the program may find the blurring of observational, experimental science with historical, origins science confusing, in this discussion guide for episode three, we emphasize the distinction between what we know about comets and worldview-based speculation about when and how they came to be.

#### **1. What is a comet?**







## **Suggestions for Further Investigation**

God designed the solar system, with the sun and the planets that orbit it, to be governed by forces that predictably keep the planets and even comets in predictable orbits. Johannes Kepler and Isaac Newton described the elliptical orbits that result. For further study, here are a couple objectives for you to complete:

- Look up Kepler's three laws of planetary motion.
- Learn how to draw an ellipse (older students can learn how to mathematically describe an ellipse).