Student Comprehension Worksheet

Directions: Please read the online Science News article “The Kuiper Belt’s dwarf planet Quaoar hosts an impossible ring” and answer the following questions. A version of the article, “This dwarf planet hosts an odd ring,” appears in the March 11, 2023 issue of Science News.

1. What and where is Quaoar? Can you also name the galaxy in which it resides?

2. Explain when “stellar occultation” occurs and why scientists use the phenomenon to study planets and other objects in space.

3. What did scientists studying Quaoar discover using stellar occultation?

4. If a planet has a ring, where is the ring supposed to be relative to the planet, according to current scientific thinking? What makes the Quaoar discovery extraordinary?

5. In current scientific thinking, what would scientists expect to happen in rings that are far beyond a planet’s Roche limit? How is the ring around Quaoar unusual?

6. What has this recent discovery done to scientists’ thinking about rings around planets, and what will they need to look for to better understand the Quaoar ring finding?