

In-class activity 14

This assignment is worth a maximum of 3.0 points, and is due in class today. No in-class assignment is accepted after the end of class.

Work cooperatively and collaboratively as a team on this in-class assignment. Each person in your group will be awarded the same points as the entire assignment. *Turn in this sheet at the end of class, and attach another page if necessary.*

Assemble Your Group

1. [0.5 points.] Find your assigned group members, and sign in below.

Team member: _____

Team member: _____

Team member: _____

Team member: _____

Icy Body Types and Comets

2. [1.5 points.] (Cf. Fix, *Astronomy: Journey to the Cosmic Frontier*, 4/e, pages 357-360.)
On the following page, fill in the history, characteristics, and classification chart for different types of comets found in the solar system. Every one of the nine rounded corner boxes should have an entry from the list below. Each term should only be used once, except where explicitly noted.

Flat, nearly circular orbit

Flat, very elliptical orbit

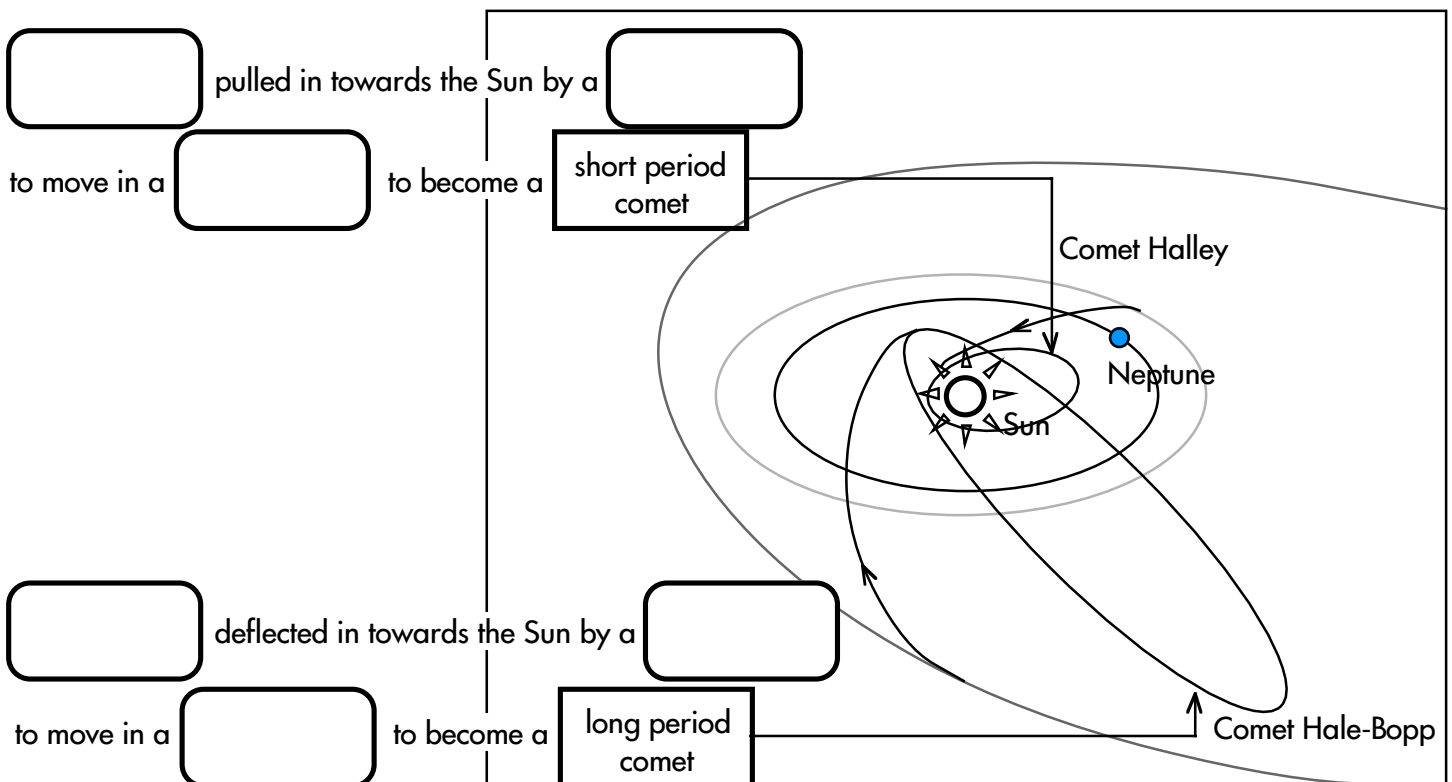
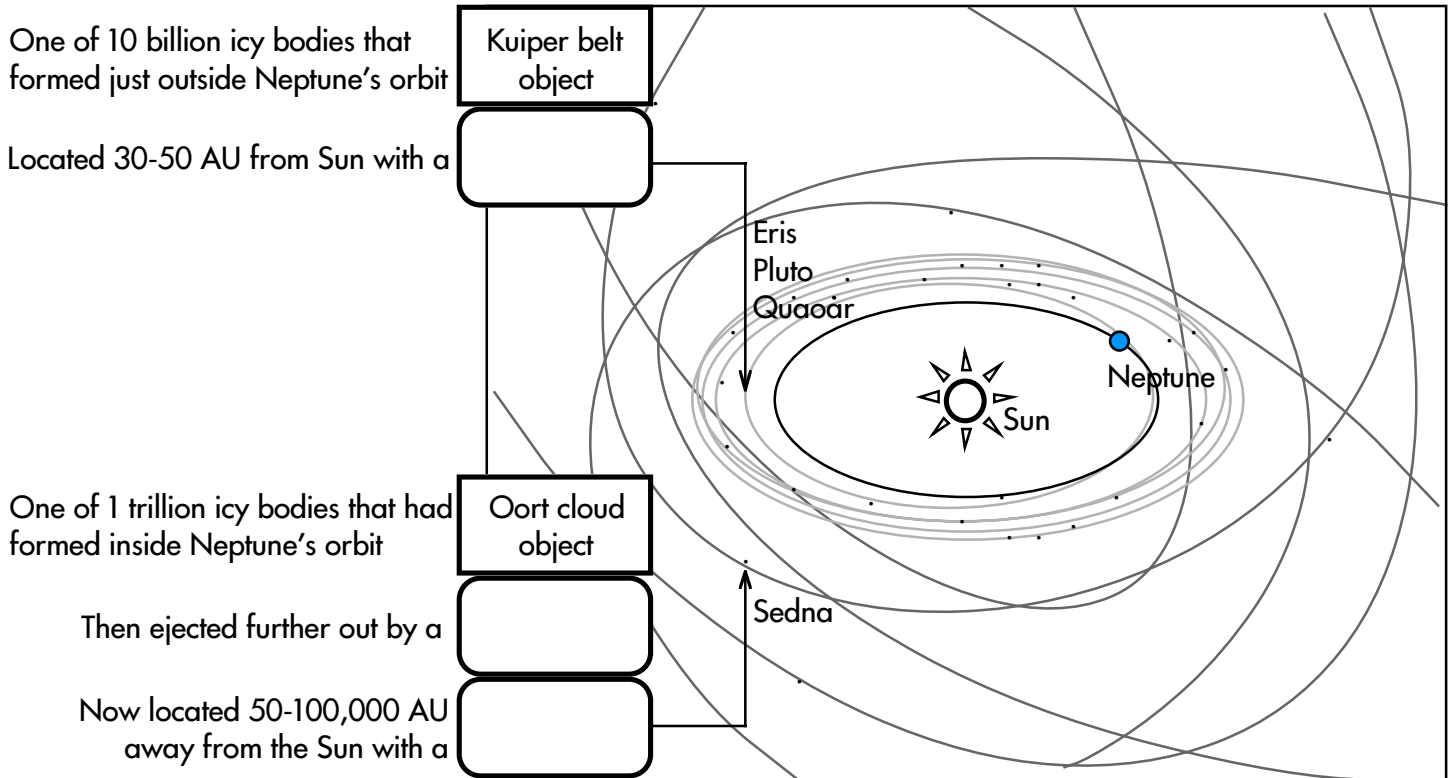
Jovian planet (2)

Kuiper belt object

Nearby star

Oort cloud object

Tilted, very elliptical orbit (2)



Comet Orbits and Kepler's Laws

3. [1.0 point.] Answer the following questions.

- (a) Which one of Kepler's three laws (*cf.* Fix, *Astronomy to the Cosmic Frontier*, 4/e, pages 69-71) explains why the short-period comets have smaller orbits than long-period comets? Clearly circle your answer below. Then briefly explain your answer.

[Kepler's first law.]
[Kepler's second law.]
[Kepler's third law.]

Explanation:

- (b) Which one of Kepler's three laws explains why a comet (whether short-period or long-period) will spend most of its time frozen, far away from the Sun, and will only be visible with tails for a very brief time when very close to the Sun? Clearly circle your answer below. Then briefly explain your answer.

[Kepler's first law.]
[Kepler's second law.]
[Kepler's third law.]

Explanation: