

# **ASTR100 DISCUSSION**

## **0104 & 0105**

### **WEEK 2**



- Office hours changed to **Mon 3:30 - 5:30pm**
- Get your *Lecture-Tutorials* book. Now available in the book store.

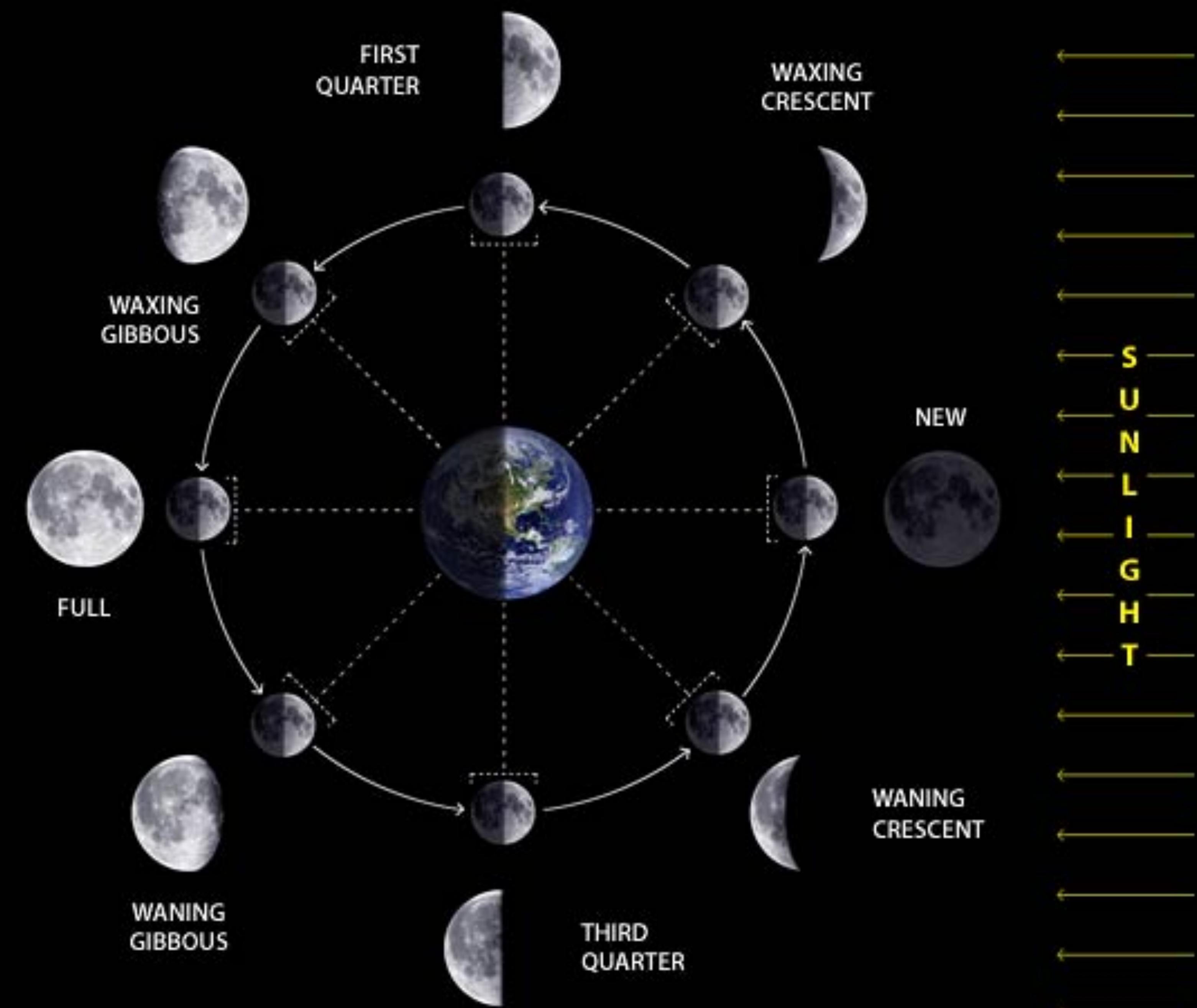
# MOON PHASES

Group question:

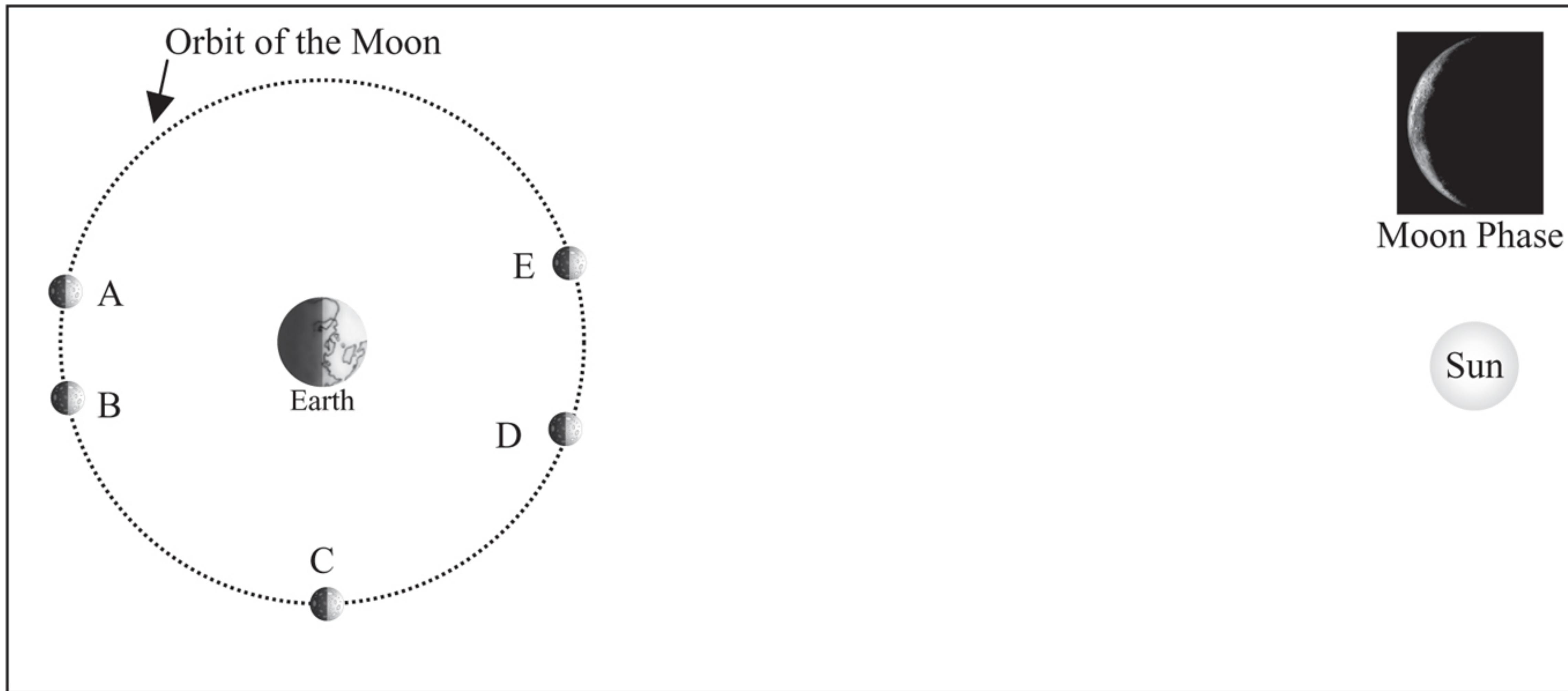
How do you translate the  
“top down” view to what you  
see from Earth?

Light on right-> increasing->  
waxing

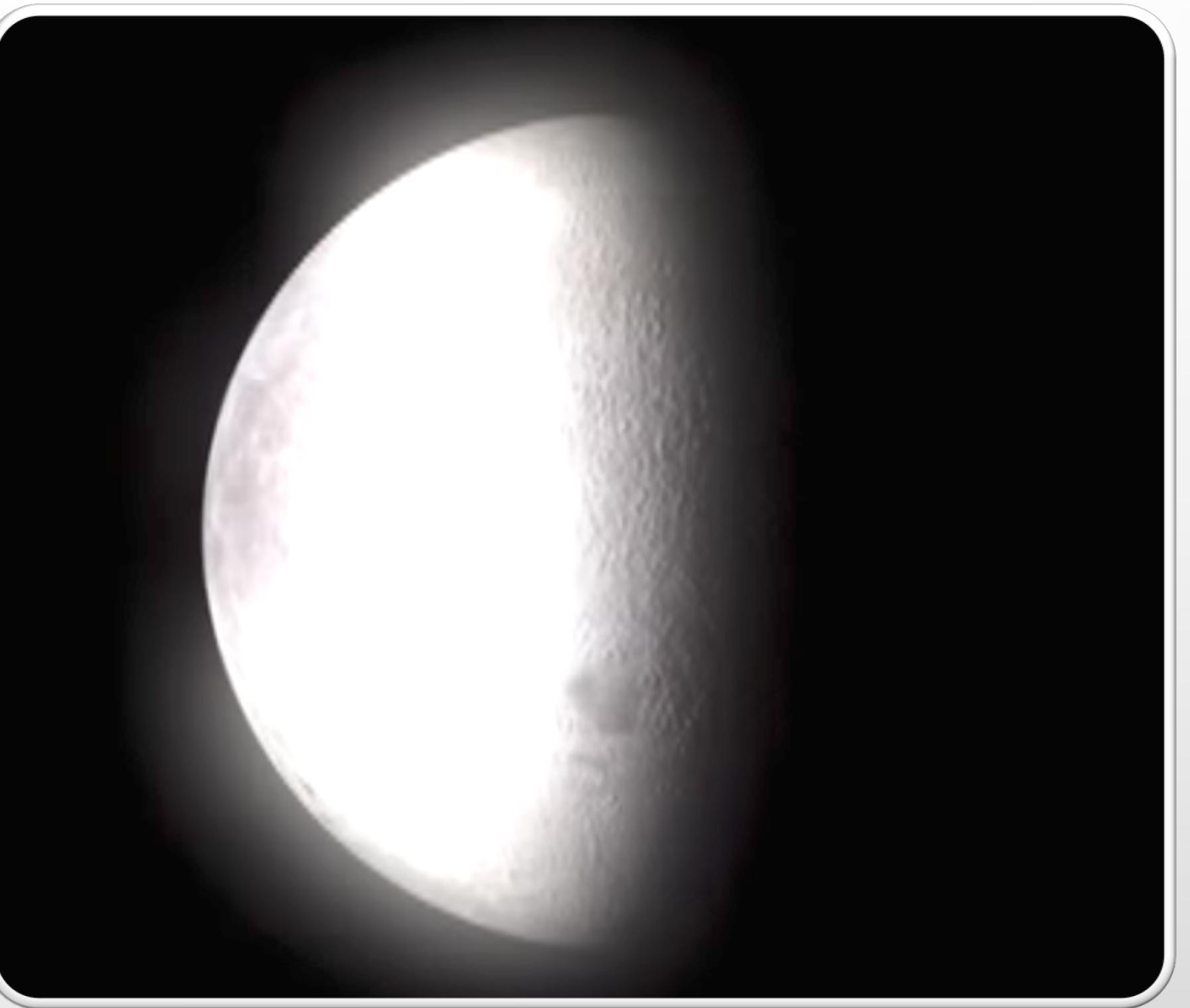
Light on left-> decreasing ->  
waning



Now, answer questions 1) and 2) on page 81.  
Write on the answer sheet.



**Discuss:**  
**First quarter or third quarter?**



# INTERPRETING THE SHAPE OF THE MOON IN ART

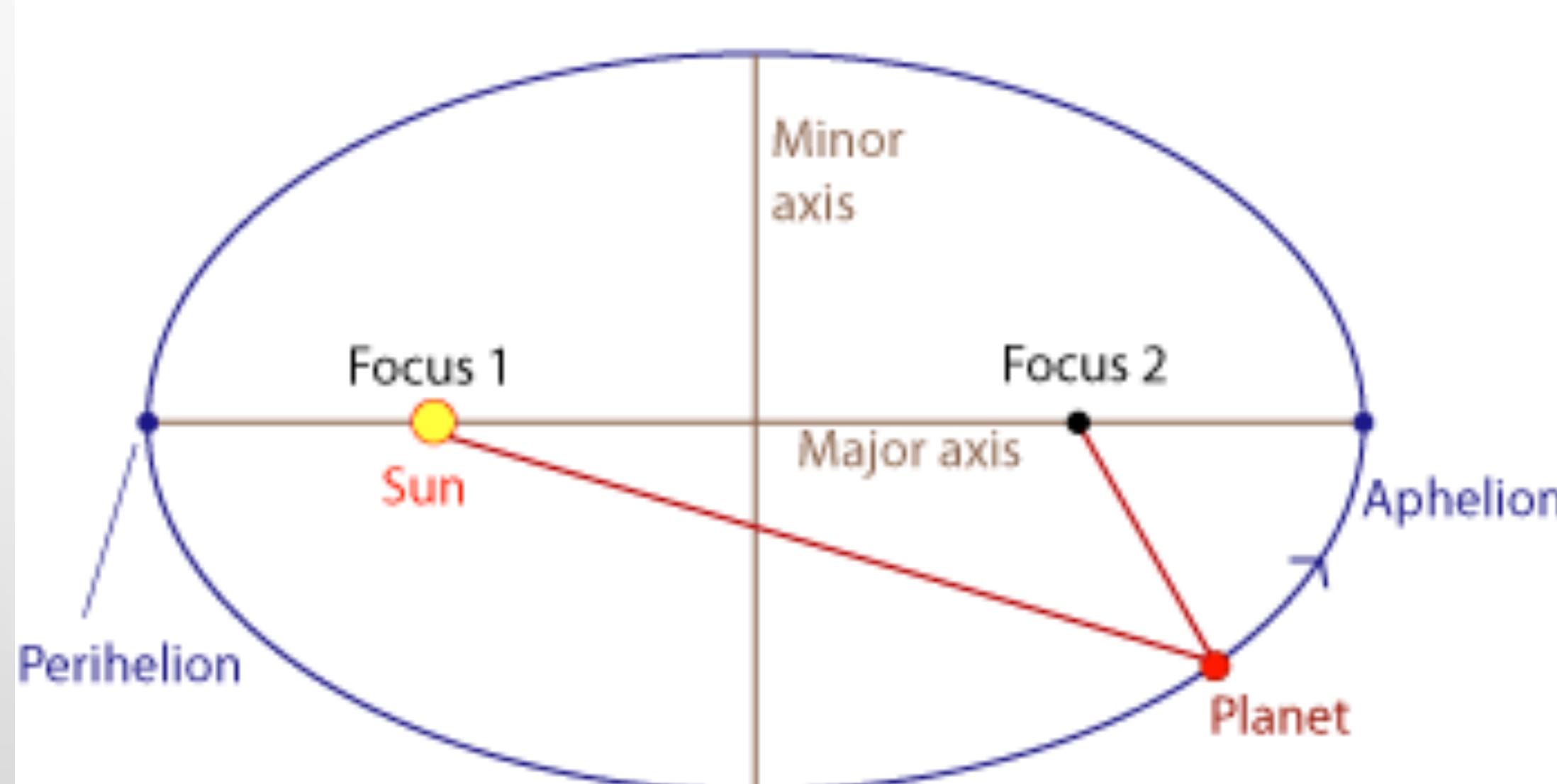
SHAPE	NORMAL?
	✓
	✓ "FULL" OR "QUARTER" OR "HARVEST" OR "WAX GIBBON" OR WHATEVER
	✓
	✗ NOT POSSIBLE AT NIGHT
	✗ ONLY POSSIBLE DURING A LUNAR ECLIPSE (#1 ONLY, DUBIOUS) OR A SOLAR ECLIPSE (BRIGHT PART IS THE SUN)
	✗
	✓ LOOKS OK
	✗ THERE'S EITHER A HOLE IN THE MOON OR A NUCLEAR WAR ON ITS SURFACE

**Now, answer question 1) on page 85.  
Write on the answer sheet.**

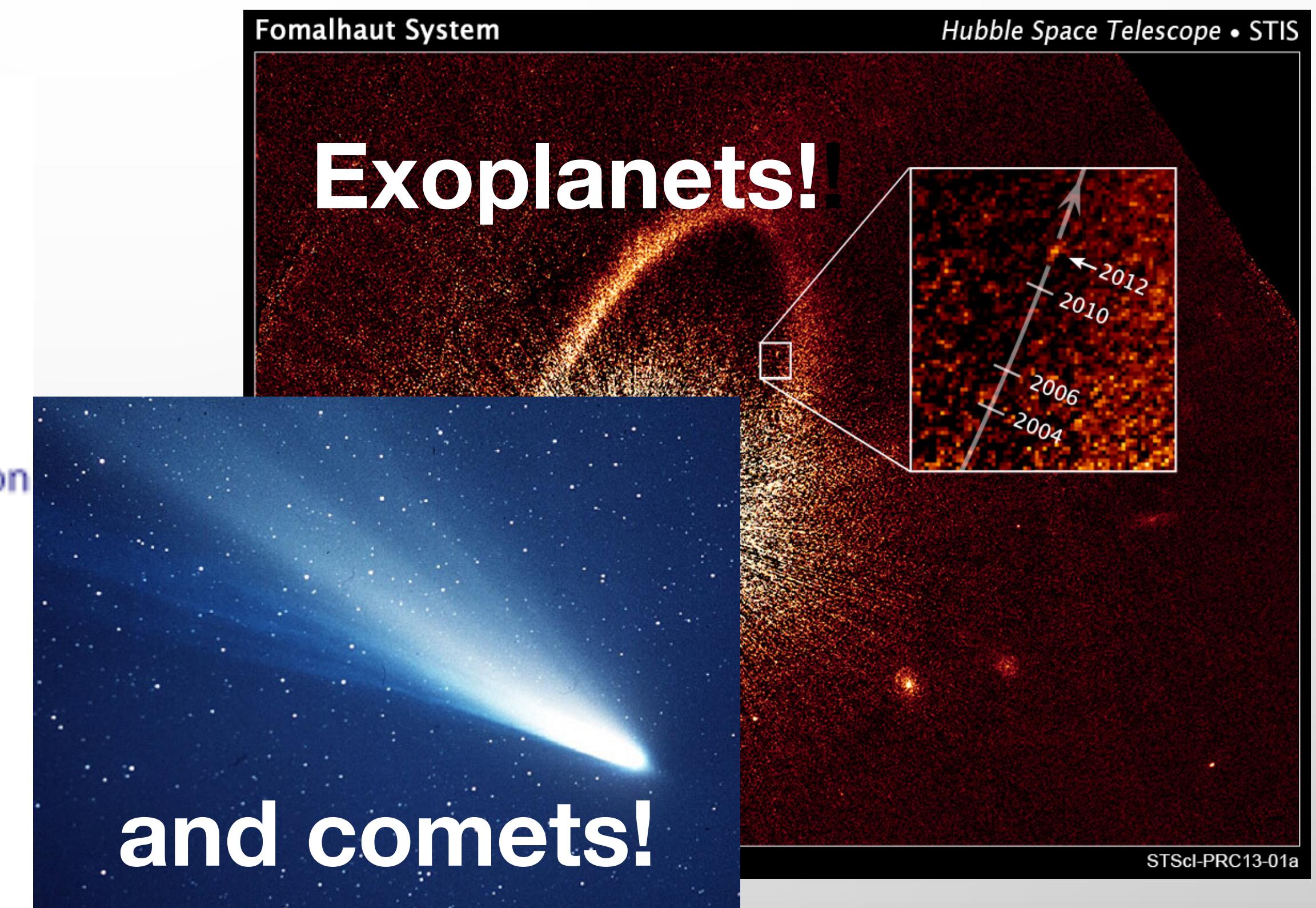
# KEPLER'S FIRST LAW

1. The orbit of a planet is an ellipse with the Sun at one focus

This law is general! And applies to...

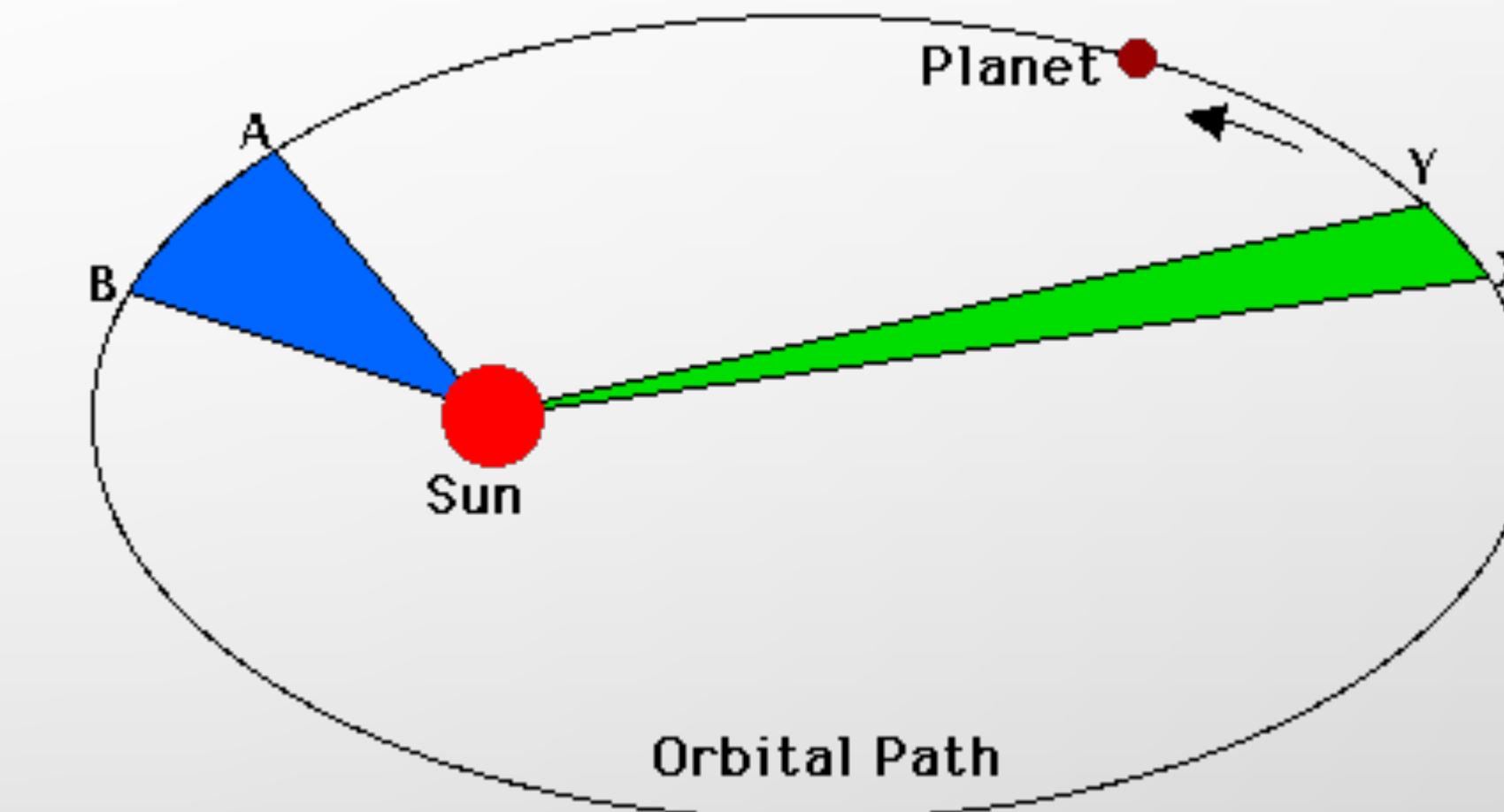
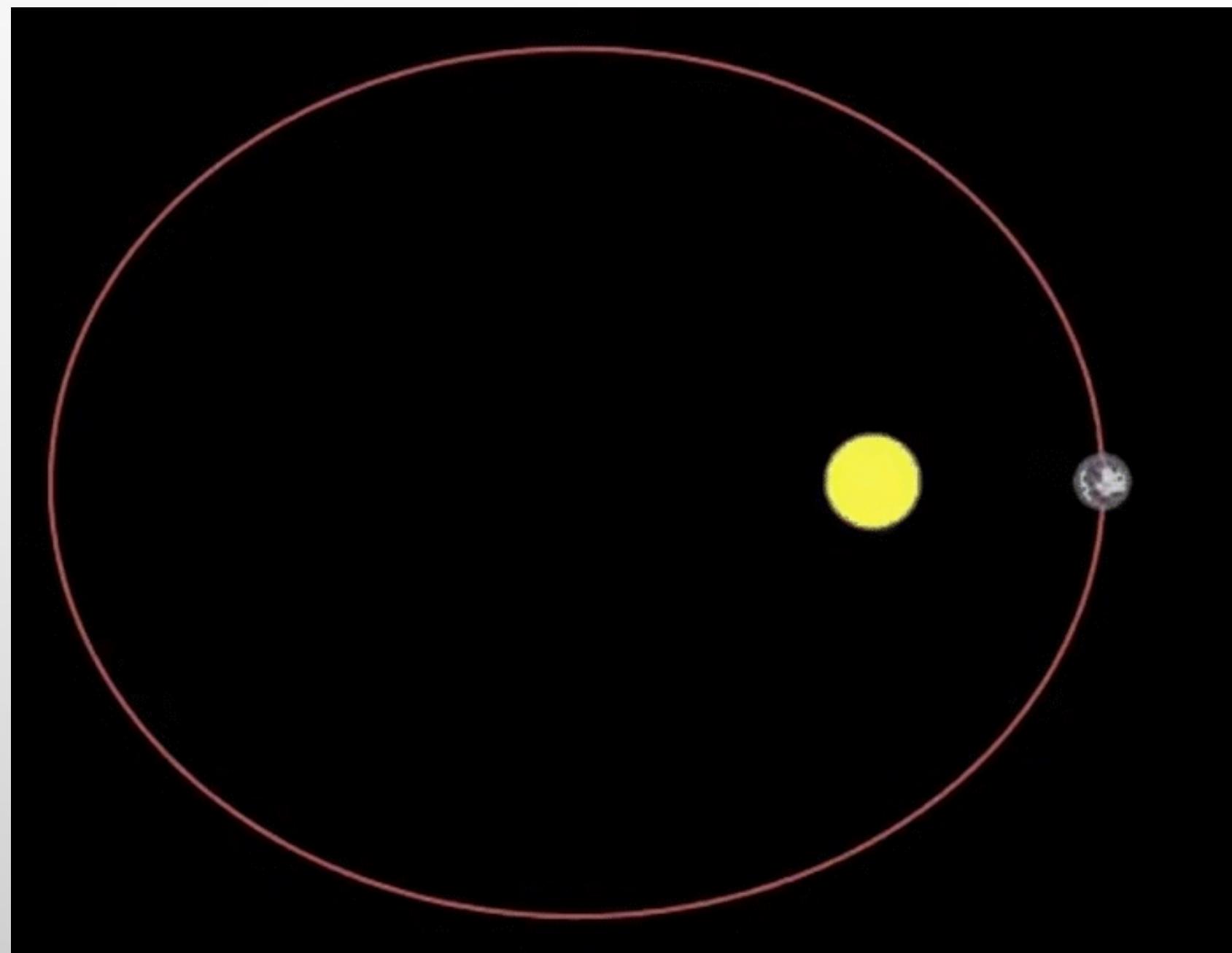


*An elliptical orbit of a planet  
(greatly exaggerated)*



# KEPLER'S SECOND LAW

2. The orbit of a planet sweeps out equal areas in equal time-> implies that planets move at different speeds through their orbit!



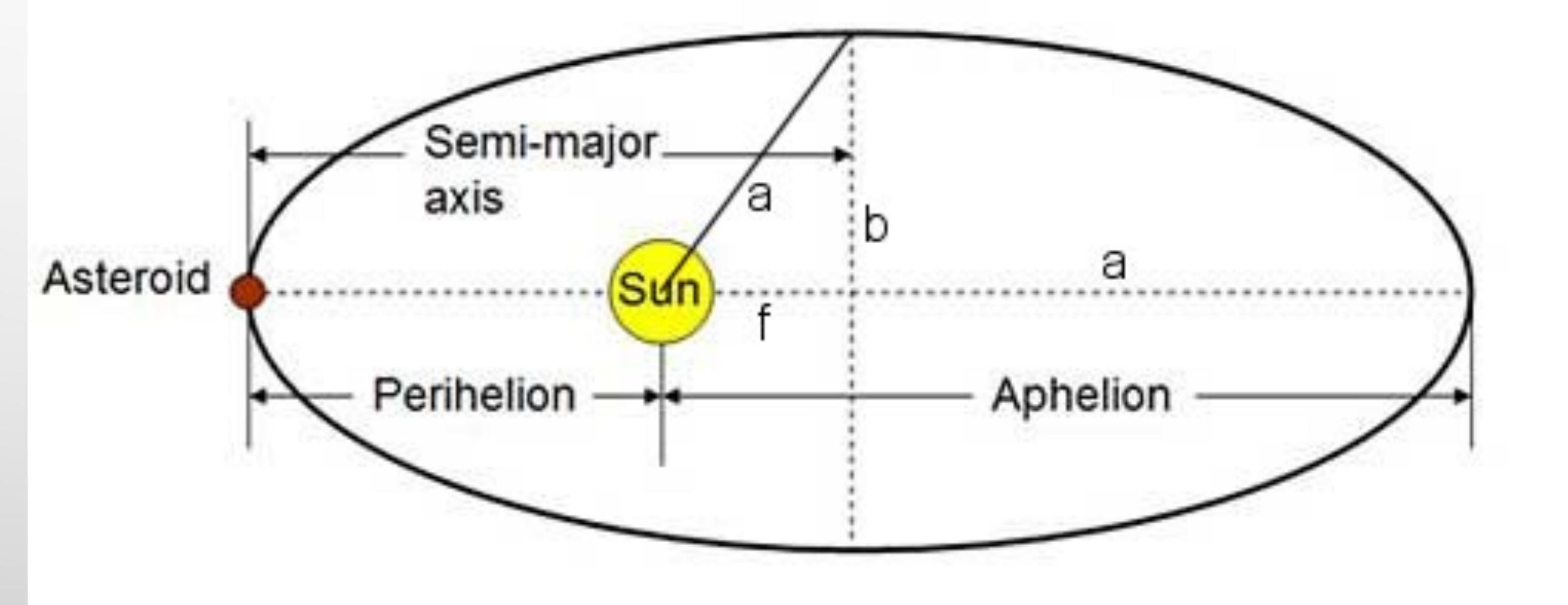
# KEPLER'S THIRD LAW

3. Relationship between the period of orbit of a planet ( $P$  [in years]) and the its semi-major axis ( $A$ )

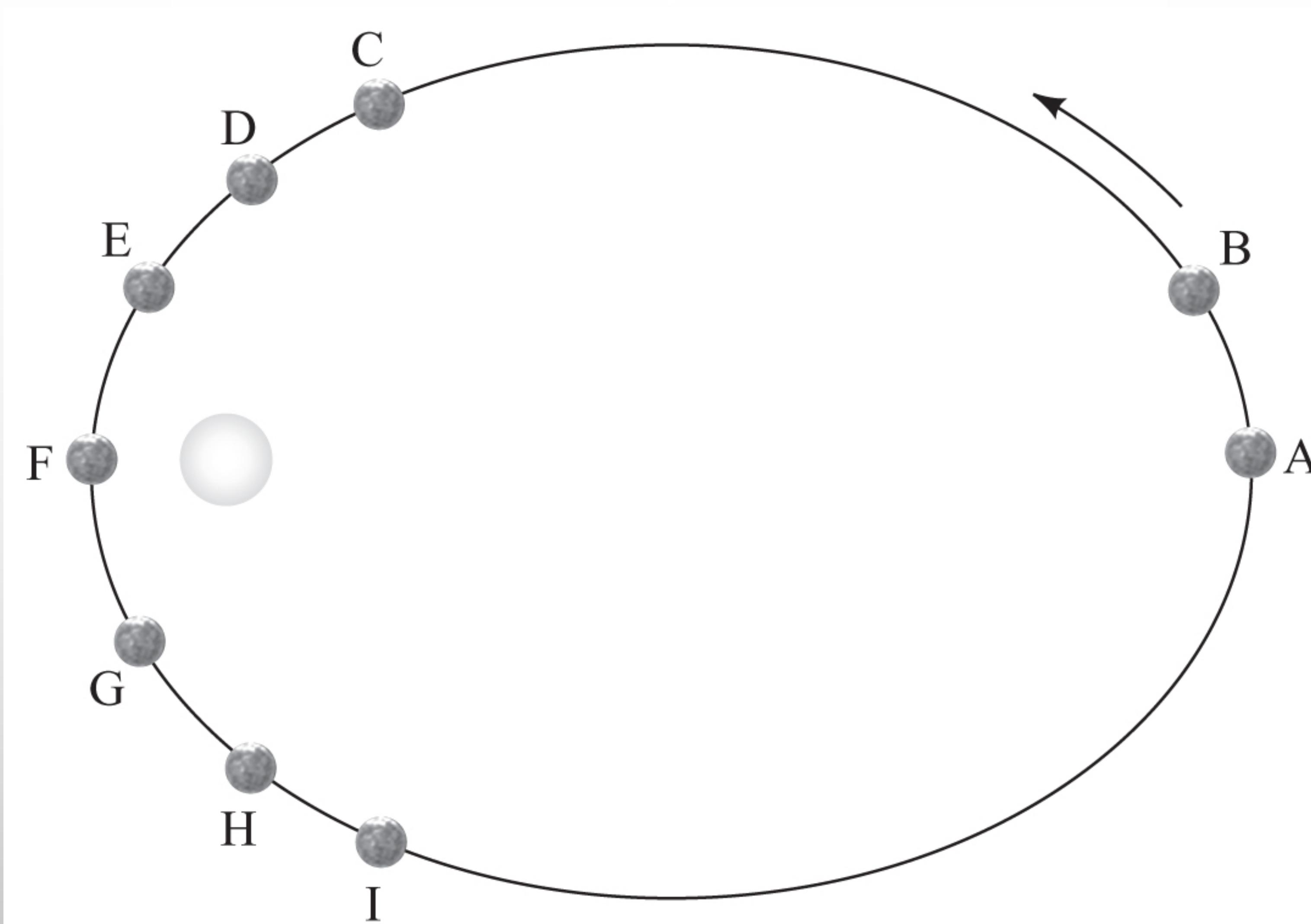
$$P^2 \text{ [in years]} = A^3 \text{ [in AU]}$$

$P$  = period = time it takes to make one full orbit

$A$  = semi-major axis



Now, answer questions 11) on page 23 of the workbook.



**Now, finish your answers and  
hand in your answer sheet.**