

**Astronomy 101**  
**Monday, Wednesday, Friday**  
**10:10 – 11:00 am**

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# Homework

- All homework (except star map one because it has been cloudy) is due today

# Homework due Friday

- Make up a test question for next test (next Wed.)
- Multiple Choice
- A-E possible answers
- 1 point for handing it in
- 1 point for me using it on test
- The question needs to be on material that will be on the next exam

# Speed of Light Homework

Will there be swapping of the seasons  
and the months of the year?

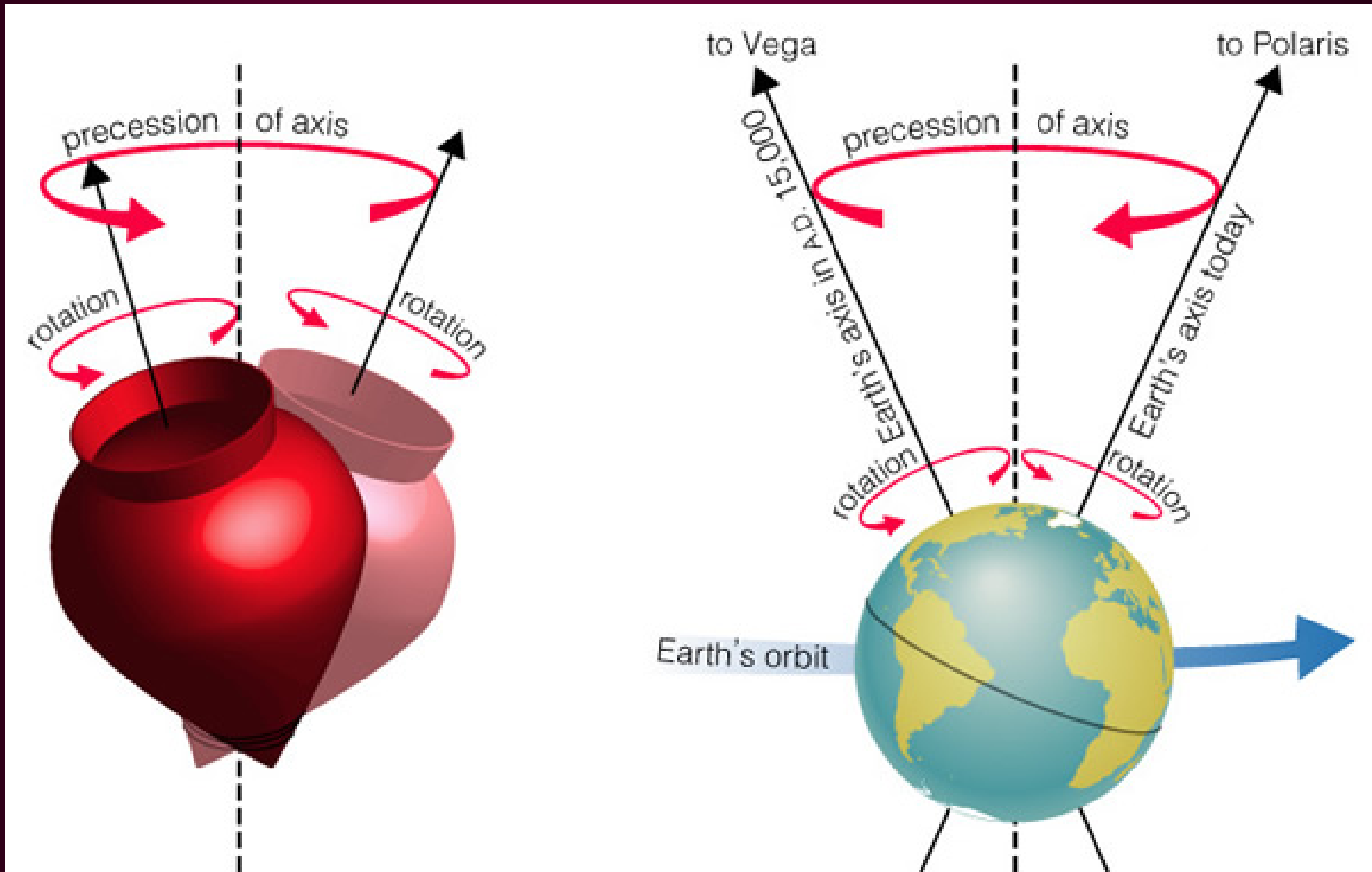
# No

- Months are defined by seasons and so winter in the Northern hemisphere will **never** occur during June.

## Equinox dates/times (Universal Time)

Year	Spring starts ( <u>March</u> )	Autumn starts ( <u>September</u> )
2000	20th Mar 07:35	22nd Sep 17:27
2001	20th Mar 13:31	22nd Sep 23:04
2002	20th Mar 19:16	23rd Sep 04:55
2003	21st Mar 01:00	23rd Sep 10:47
2004	20th Mar 06:49	22nd Sep 16:30
2005	20th Mar 12:33	22nd Sep 22:23
2006	20th Mar 18:26	23rd Sep 04:03
2007	21st Mar 00:07	23rd Sep 09:51
2008	20th Mar 05:48	22nd Sep 15:44
2009	20th Mar 11:44	22nd Sep 21:18
2010	20th Mar 17:32	23rd Sep 03:09

# Long Term Changes



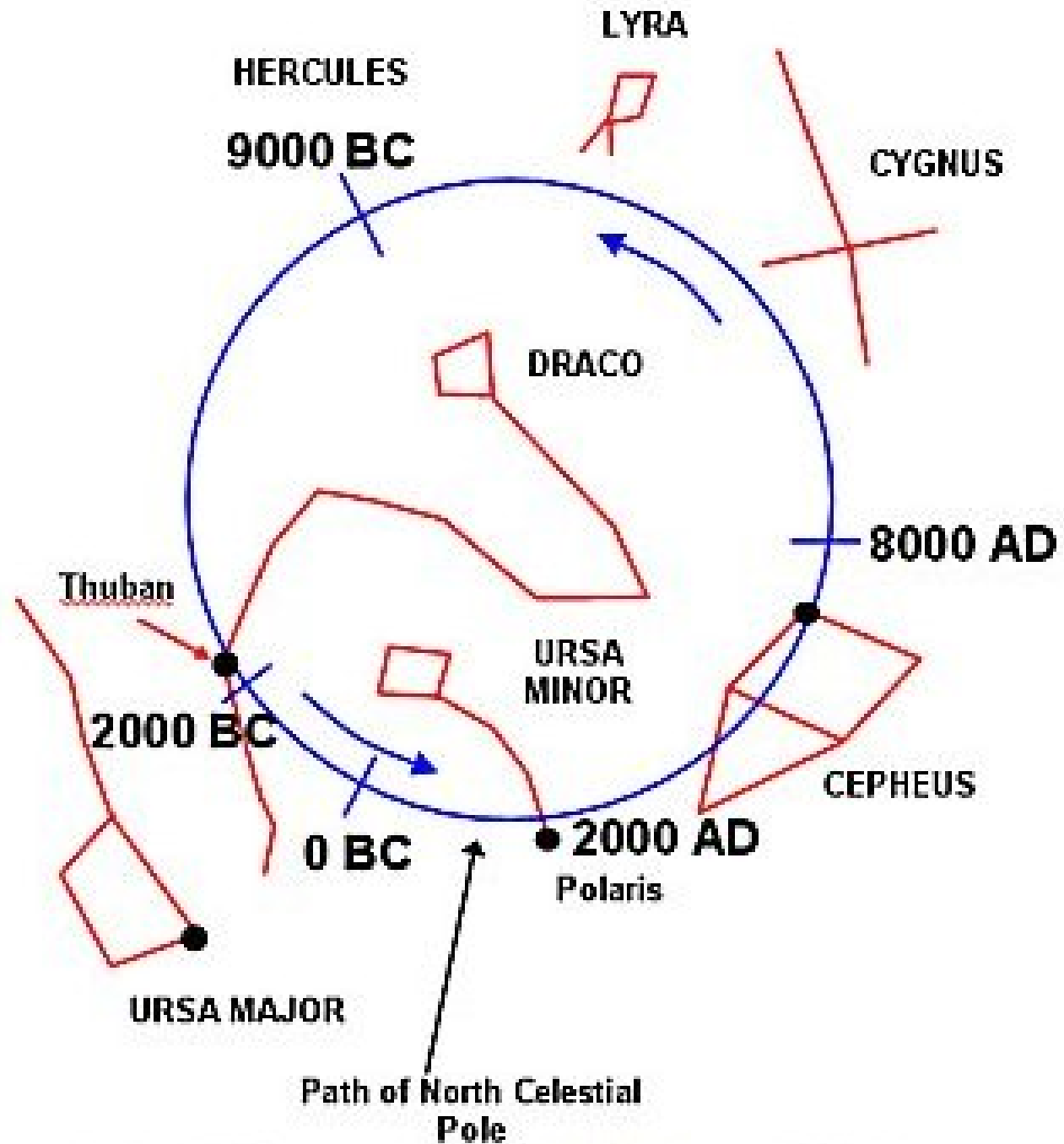
# Precession

- Earth precesses like a top
- Precession - phenomenon by which the axis of a spinning object (e.g. a part of a gyroscope) "wobbles" when a torque is applied to it

# Forces

- For a top, the force is gravity, which is trying to pull the top down
- For the Earth, the forces are due to the pull of the Sun and Moon, which is trying to align the Earth's axis with the ecliptic
- Sun and Earth pull on the Earth's "bulge"  
(the Earth is not completely spherical)

Period to go around once is 26,000 years



# Because of precession

- The position of a star that corresponds to the North Celestial Pole changes

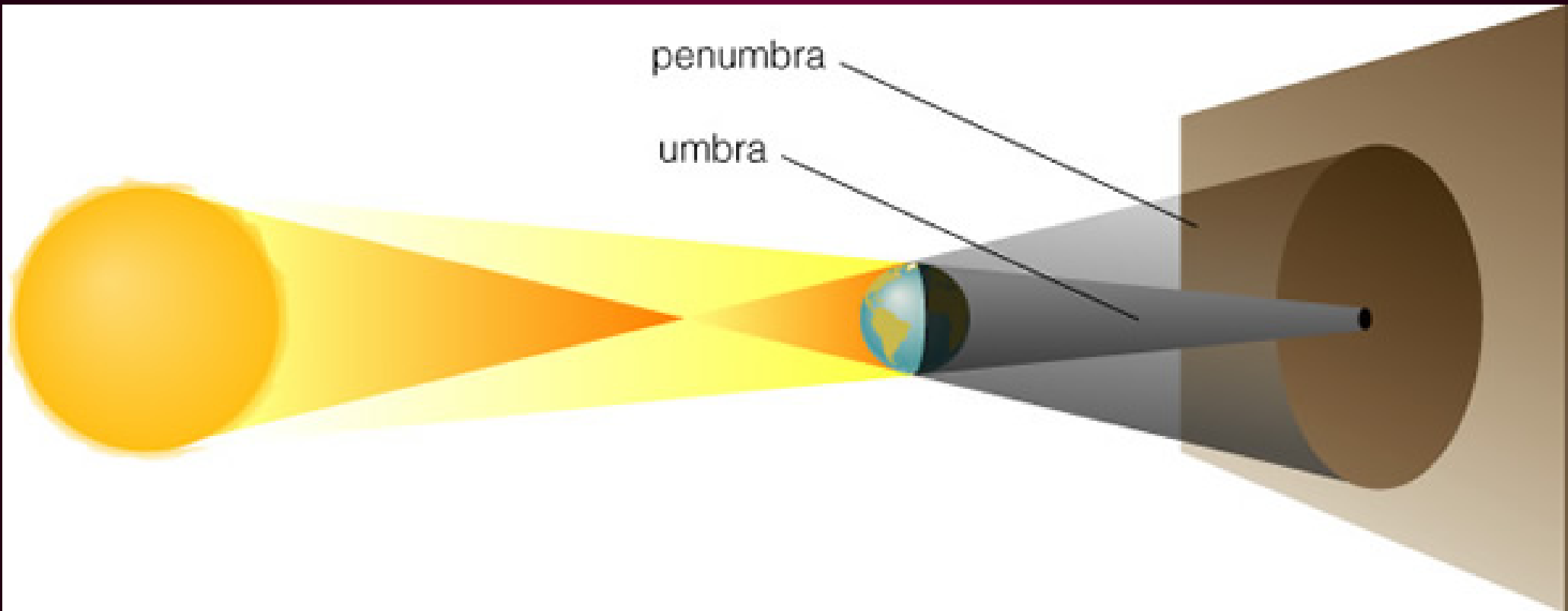
Where does the light from  
the Moon originate?

## Answer

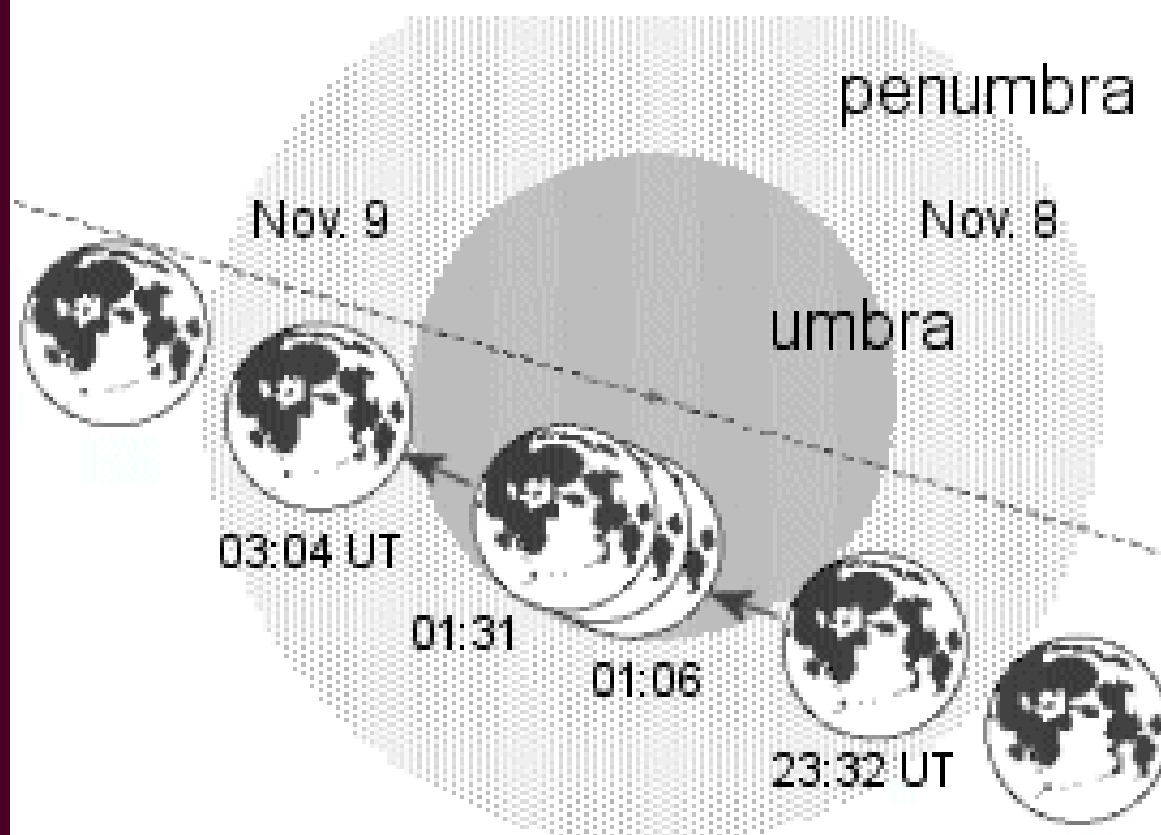
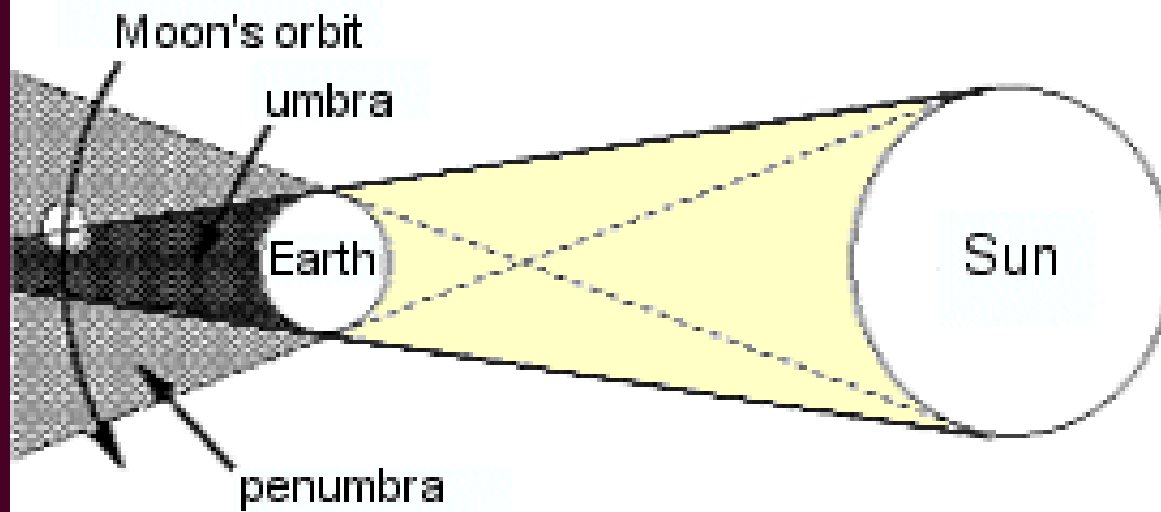
- It reflects light from the Sun

# Eclipses

- Lunar Eclipse – Moon passes through Earth's shadow
- Solar Eclipse – Moon's shadow falls on Earth



- Umbra – light totally blocked
- Penumbra – light partially blocked



## Lunar Eclipse

Passing through Earth's shadow



Why is the Moon red?  
Shouldn't it be totally dark?

# Why is the Earth Red?

- Even though Earth blocks the moon from direct sunlight during an eclipse, some sunlight is refracted, or bent, by the Earth's atmosphere and illuminates the moon.
- Most of this refracted light is orange or red

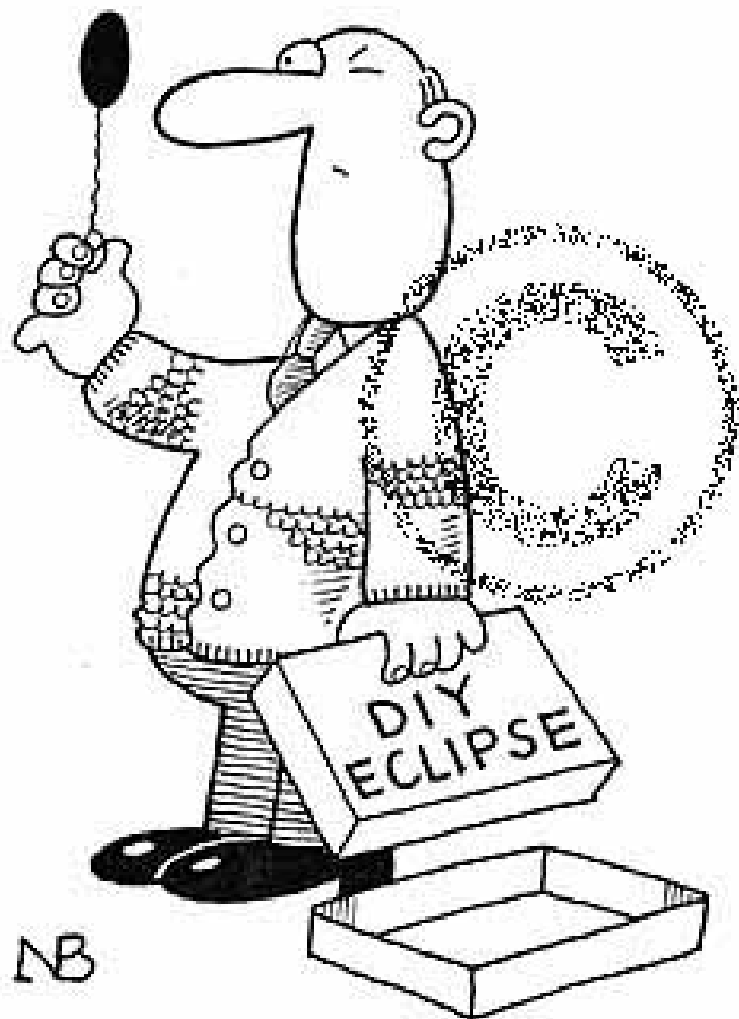


Should you look directly at a  
Lunar Eclipse?

YES

- Should you  
**Should you look directly at  
a Solar Eclipse?**

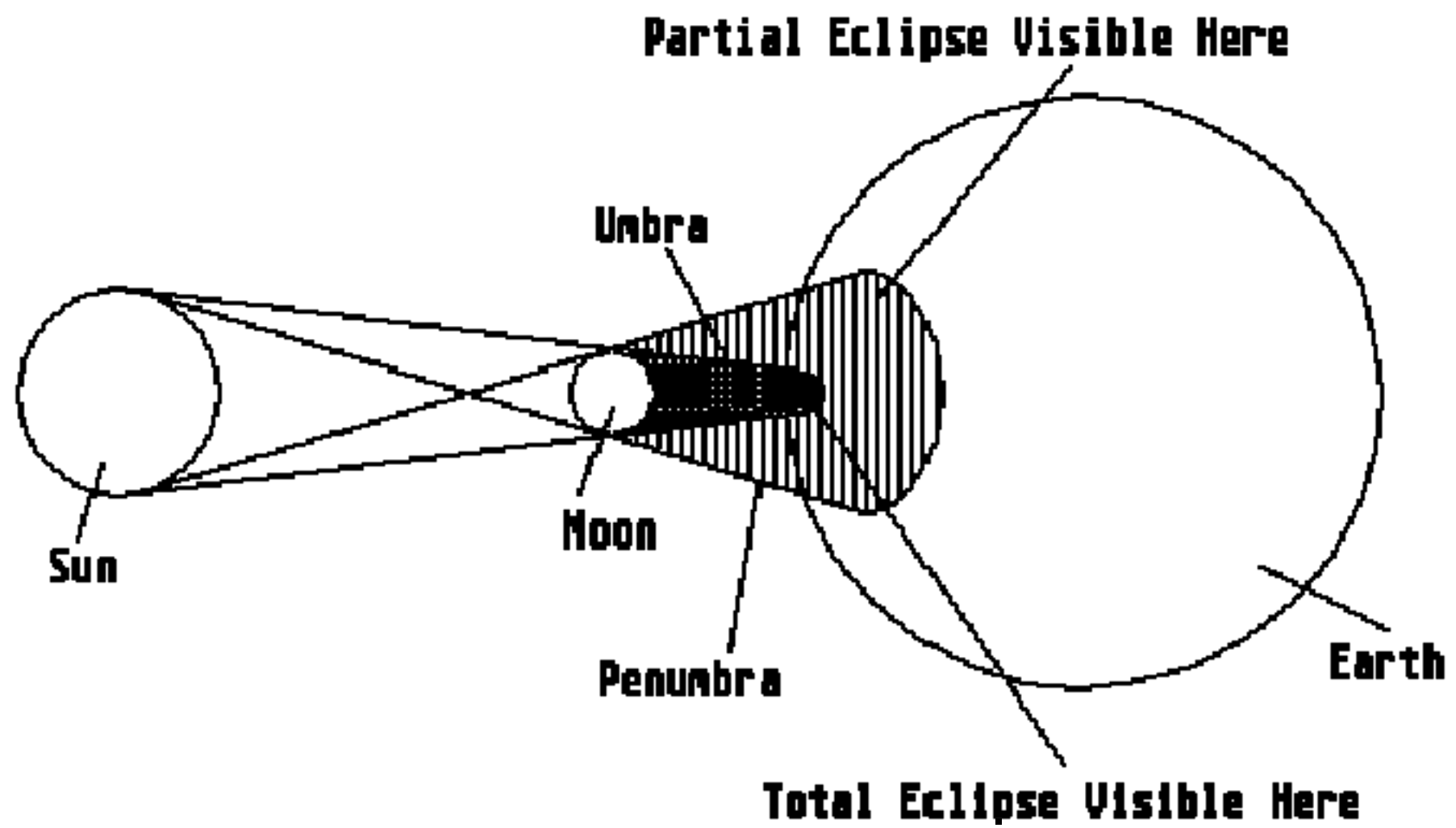
No!!!!!!!



NB

# Total Solar Eclipse





# Planets

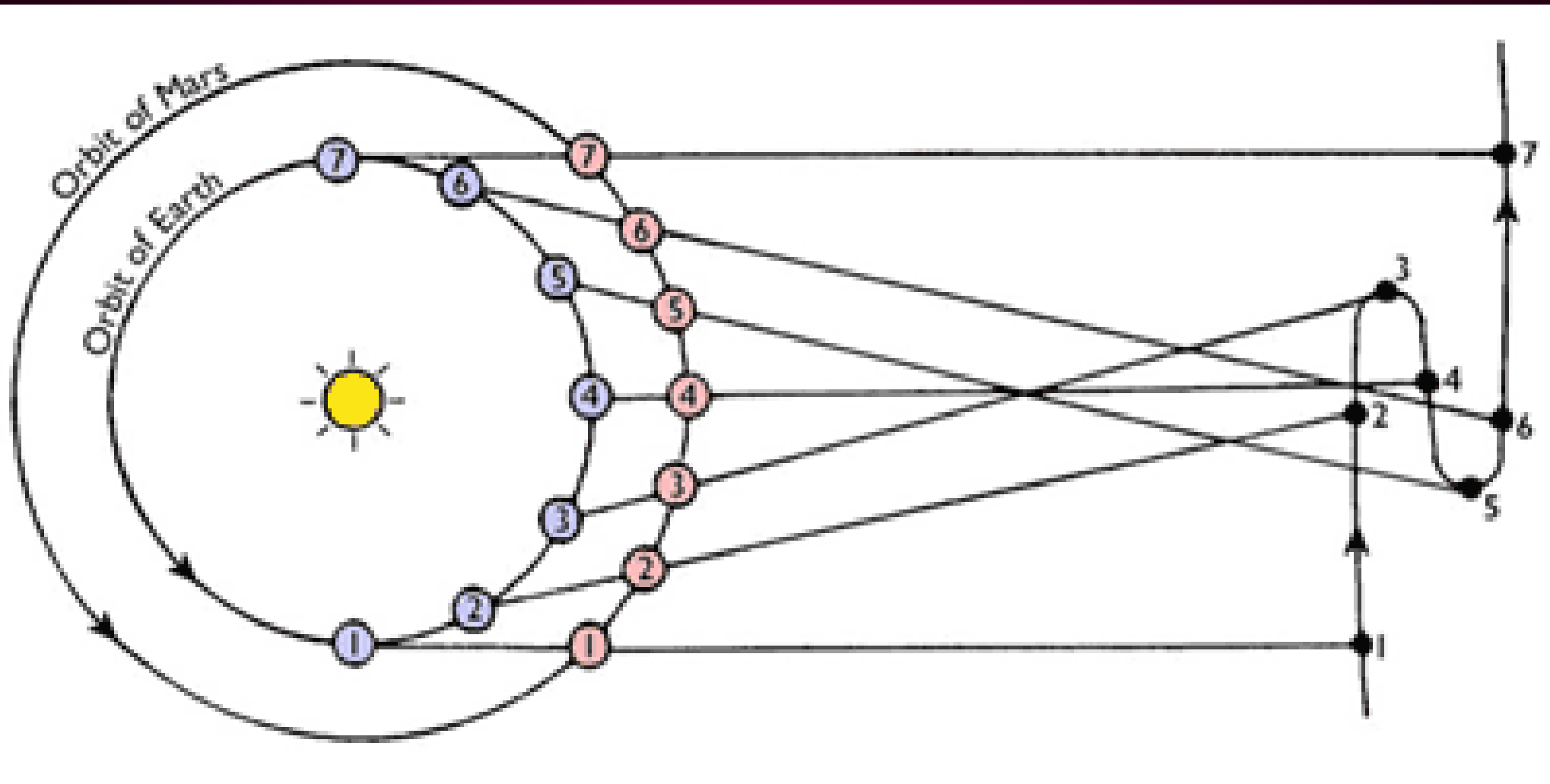
- There are 5 planets observable without a telescope



# Planets

Planets is from a Greek word meaning “wanderer”

# Retrograde Motion



What are the days of  
the week named after?

# Days of the Week

<b>Latin</b>	<b>Old English</b>	<b>English</b>	<b>German</b>	<b>French</b>	<b>Italian</b>	<b>Spanish</b>
Dies Solis	Sunnandaeg	Sunday	Sonntag	dimanche	domenica	domingo
Dies Lunae	Monandaeg	Monday	Montag	lundi	lunedì	lunes
Dies Martis	Tiwesdaeg	Tuesday	Dienstag	mardi	martedì	martes
Dies Mercurii	Wodnesdaeg	Wednesday	Mittwoch	mercredi	mercoledì	miércoles
Dies Jovis	Thunresdaeg	Thursday	Donnerstag	jeudi	giovedì	jueves
Dies Veneris	Frigedaeg	Friday	Freitag	vendredi	venerdì	viernes
Dies Saturni	Saeternesdaeg	Saturday	Samstag	samedi	sabato	sábado

- The seven-day week originated in ancient Mesopotamia and became part of the Roman calendar in A.D. 321.
- The names of the days are based on the seven celestial bodies (the Sun, the Moon, Mars, Mercury, Jupiter, Venus, and Saturn), believed at that time to revolve around Earth and influence its events.
- Most of Western Europe adopted the Roman nomenclature.

Where is Mesopotamia?



# Why Thor?



- These names come to us originally from the Greeks and Romans, who named the days of the week after their gods.
- The Anglo-Saxons, who invaded Britain hundreds of years ago, adopted this idea but substituted their own gods.
- The English language has inherited and changed those names a bit, but the ones we use today resemble those names.

- **Sunday:** Sun's Day. The Sun gave people light and warmth every day. They decided to name the first (or last) day of the week after the Sun.
- **Monday:** Moon's Day. The Moon was thought to be very important in the lives of people and their crops.
- **Tuesday:** Tiw's Day. Tiw, or Tyr, was a Norse god known for his sense of justice. He was the Norse god of War.
- **Wednesday:** Woden's Day. Woden, or Odin, was a Norse god who was one of the most powerful of them all.
- **Thursday:** Thor's Day. Thor was a Norse god who wielded a giant hammer.
- **Friday:** Frigg's Day. Frigg was a Norse god equal in power to Odin and also his wife.
- **Saturday:** Seater's Day or Saturn's Day. Saturn was a Roman god.

*Any Questions?*