

Models of the sky—11 Sept

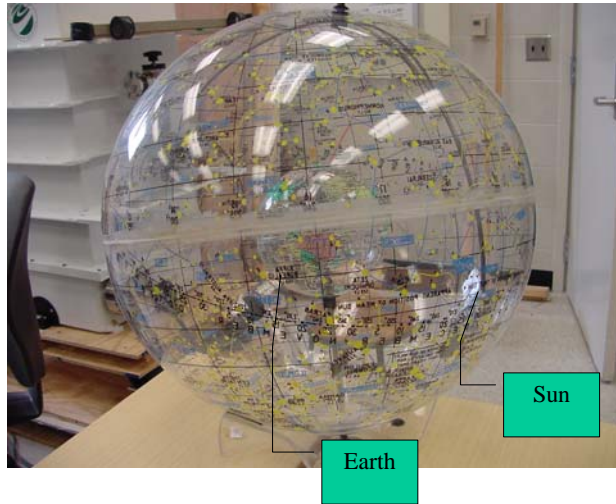
- Homework 1 is due Mon.

Changes in the Sky

- The sun sets south of west in winter.
- Winter days are short.
- Stars move east to west over a night.
- The constellations change over the months.
- The sun (and moon and stars) rises & sets.
- The sun is higher in the sky in summer than winter.
- Planets move with respect to the stars.
- Comets appear irregularly.

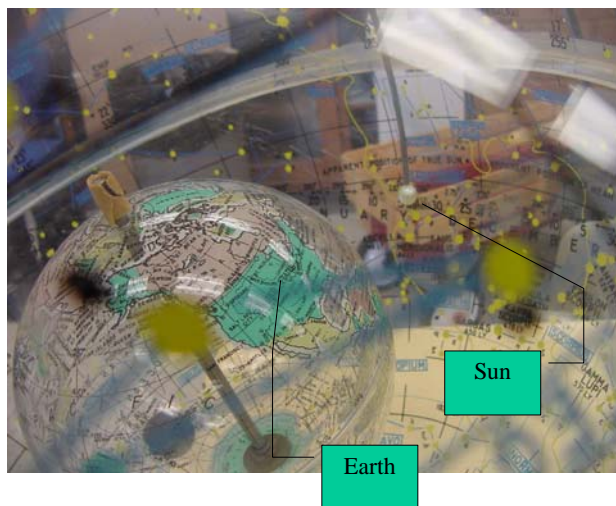
Celestial sphere

- Greek astronomers modeled the sky.
 - Earth is in the center.
 - Stars are pasted on a celestial sphere.
 - We will figure out what they did about the Sun and moon.
- Our model has Earth, sun, stars on plastic celestial sphere. You may move the sun, turn the earth.



Celestial sphere: sun

- Our model has Earth, sun, stars on plastic celestial sphere. You may move the sun, turn the earth.



The Celestial Sphere

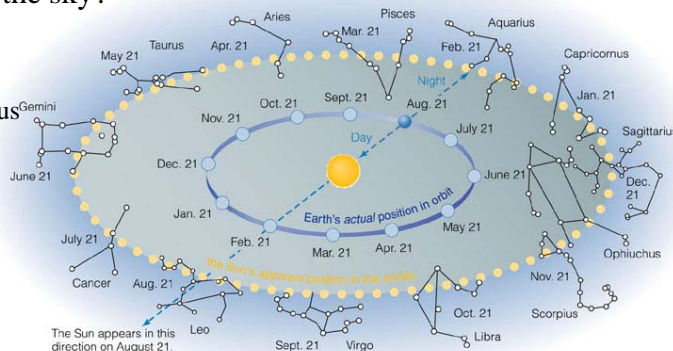
1. What explains observation A?
 - a) The sun moves around the earth.
 - b) The earth moves around the sun.
 - c) The earth turns.
2. What explains observation B? Use same foils.
3. What explains observation C? Use same foils.
4. What do I move in the plastic model to demonstrate observations A & B?
 - A. Move the sun only.
 - B. Turn the earth only.
 - C. Turn the whole works.
5. What do I move in the plastic model to demonstrate observation C? Same foils.

- What motions have you observed?
- A. Night & day. Sun rises & sets.
 - B. Stars rise & set.
 - C. Different stars are seen at different times of the year. Eg., Orion is seen in early evening in March. The “Summer Triangle” is seen in early evening in the summer.

The Celestial Sphere

- The sun “moves” into different constellations of the zodiac during the year.
4. At midnight tonight, which constellation of the zodiac will be high in the sky?

- A. Pisces
- B. Virgo
- C. Sagittarius
- D. Gemini



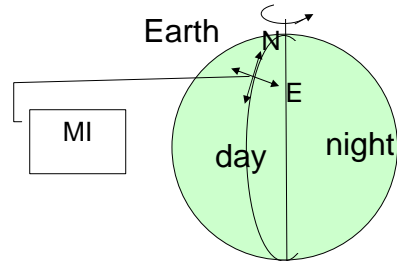
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The Celestial Sphere

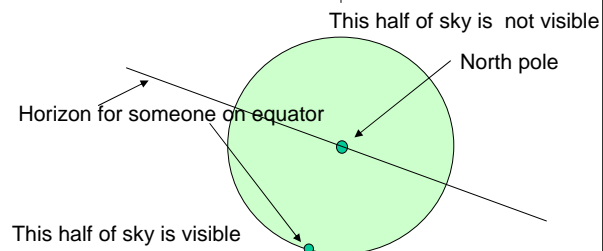
2. How do you explain day and night using the celestial sphere?



Sun



Sun



The Celestial Sphere

5. Which constellation is high in the sky at sunset tonight?

- A. Pisces
- B. Virgo
- C. Sagittarius
- D. Gemini

- A star rises at 8 pm. When does it rise two months from now? You should be able to figure out this question from our model.