

Ancient Science

9/11/2009

Opening Discussion

- Have you seen anything interesting in the news?
- What did we talk about last class?
- Opposition and conjunction. Venus at sunset.
 - To rise at sunset an object must be farther from the Sun than the Earth. Venus never does that.
 - Not a function of velocity.
 - Meaning of circumpolar. Venus isn't except very close to poles at certain times of year.

Minute Essay Responses

- How does the Moon effect tides?
- For better or worse, it is my job to judge you.
- 09/09/09 in astronomy.
- What would happen if the Earth's magnetic poles switched?
- Parallax as proof of the Earth's motion.
- Planets are not moving toward the Sun. Moon is moving away from Earth.
- Extra credit?
- Fastest spacecraft. Mars travel time.
 - http://en.wikipedia.org/wiki/New_Horizons

Scientific Method

- This class counts for common curriculum in part because we talk about and apply the scientific method.
- Applying logic thinking and deductive reasoning to observations is a rather natural thing for humans to do. Science simply makes that a formal practice out of this.
- A big part of the formality comes from the development of models to describe what is seen. Good models have predictive abilities.

Ancient Astronomy

- Astronomy is the oldest science. Ancient people used observations of the motions of heavenly bodies to guide many of their activities as they could be used to predict changes of the seasons.
- Many societies also developed rather elaborate calendars based on the motions of heavenly bodies.
- The most significant structures in ancient times nearly all had an astronomical aspect to them.

Peruvian Line Art

- How would you explain the large figures drawn in the Nazca desert in Peru? Break into small groups to discuss this a bit.

Greek Science

- The real advent of modern science came with the Greeks. They were the first to create models to explain things that they saw in the world.
- The Greeks got many things right, but for various reasons, the correct models didn't stick. One of the problems they had was insisting on using circles/spheres which they felt were the perfect shapes.
- The Ptolemaic model used epicycles and dominated western science for 1500 years.
- Why did we lose so much of the knowledge of the Greeks?

Measuring the size of the Earth

- Not only did the Greeks know the Earth was round, they managed to measure the size of the Earth.
- How did Eratosthenes do this? There was something very special about one of the cities he used. What was that and why was it important?

Minute Essay

- Knowledge has been repeatedly gained and lost through history. Why do we seem to keep losing things that we have known? Do you think that could happen again in modern times? If so, how would it happen and what would be the impact?
- Assignment #1 is due on Monday. There is a link to it on the web site.