

Astronomy 100, Fall 2005

Name:

Weekly assignment 9: Planetary formation and UFOs

Due: November 28, 2005 at 6 p.m.

Questions on chapters 18 and 19:

What did Immanuel Velikovsky propose as a theory of planetary formation?

Give **two** observations that suggest that Velikovsky's theory is inconsistent with the evidence.

If the orbit of a moon is retrograde compared to the planet's rotation, what can be said about the timing and manner of the moon's origin?

How can you refute the notion that because there are no supernovae older than about 6,000 years old (which is not true; some supernova remnants are much older), the universe is no older than about 6,000 years?

On pages 200-201, Plait recounts a brief history of the Kansas state School Board and its dabblings in the teaching of "creation science". What recent event would give Plait a little less optimism? Give a date and an event. Hint: you will have to search a Web news site for this – it's too recent to appear in any textbook!

To set up the chapter on UFO's and alien civilizations, answer the following:

1. What are the **three basic requirements** for life?
2. What is a habitable zone of a star? Is the zone limited to a certain distance from the star? Where else can the "zone" be?
3. Can all spectral classes of stars support life? No. Why can't O, B and A-class stars support life? Why can't M-class stars support life? Hint: Not the same reason for each!
4. Why is Jupiter necessary for life to continue to develop on Earth? Hint: this is called the "rare Earth" hypothesis.
5. What is a Dyson sphere, and how will that solve the energy crisis of a technological civilization? Is there a step of technological development beyond a Dyson sphere? What is it?
6. What was the goal of Project Ozma, and was it successful?

After your Thanksgiving meal, go outside and look up and to the right of Venus; find a triangle of bright stars. Sketch them below (give date/time and orientation) and name them!