Earth Science Unit 1 Study Guide

General Notes:

* Your best source of study material is the powerpoints from class.
* You test will be mostly multiple choice, with some free response.
* Below I’ve put the main topics I want you know, with general ideas about each topic highlighted.

1. General Overview of class
   1. The four main spheres that we will cover in this class (Hydrosphere, Lithosphere, Atmosphere, Celestial sphere).
   2. Difference between independent and dependent variable
   3. Reasons why we use graphs and charts
   4. Be able to make a graph using data that I will give to you
2. Scientific process
   1. Difference between observation and inference
   2. The steps in the scientific method.
   3. What is a hypothesis? What is a theory?
   4. Why is sample size important?
3. Big Bang
   1. The five main events that happen in the beginning of the universe.
      1. Big bang, time and space begin.
      2. Creation of matter from energy
      3. First appearance of atoms
      4. First stars and galaxies appear
      5. Our solar system forms
   2. Evidences for the big bang
      1. Everything is expanding (red shift)
      2. Background radiation
      3. Radioactive dating
      4. Speed of light, stellar distances
   3. According to our current theory, what was the universe before the big bang?
4. Scale of the Universe / Our place in the universe
   1. What is an asteroid, comet, moon, planet, star, star system, galaxy
   2. Relative distances between the planets
   3. Relative distance to the next closest star
   4. Relative sizes of the planets/sun.
   5. Know why the speed of light is significant for what we see in the night sky.
   6. Relative time scale of the universe. (If we were to squish the history of the universe into one year).
5. Stars and Galaxies
   1. What is a galaxy?
   2. 3 main types of galaxies and what they look like (Spiral, Elliptical, Irregular)
   3. What is a nebula, protostar, star?
   4. H-R diagram. The four main groups of stars
   5. Sequence of life for a low mass star
   6. Sequence of life for a high mass star
   7. What is a red giant, red super giant, white dwarf, black dwarf, neutron star, black hole?
   8. When is a protostar first considered a protostar?
   9. When is a star first considered a star?
6. Constellations
   1. What is a constellation?
   2. Know the nature of constellations (3d, not 2d)
   3. Reasons why we can’t always see all the constellations
   4. Ecliptic
   5. 4 types of constellations (Zodiac, Circumpolar, Winter, Summer)
   6. One example of a circumpolar constellation
   7. One example of a winter constellation
   8. One example of a summer (constellation)
   9. What are pointer stars?

Don’t freak out about the test! If you have any questions, please email me or come and see me! I want you to succeed and do well.