- 1. Earth Science
  - a. Branches
    - i. Geology—study of rocks, minerals, earthquakes, volcanoes, fossils, history
    - ii. Oceanography—sea water, patterns, life, chemistry, physics, ocean basin characteristics
    - iii. Meteorology-atmosphere, weather, climate, etc
    - iv. Astronomy–Earth's place in solar system and universe
  - b. Earth Spheres
    - i. Geosphere
    - ii. Hydrosphere
    - iii. Atmosphere
    - iv. Biosphere
  - c. Environment and people—why is this stuff important?
    - i. Our interaction with Earth can change things that affect us: floods, for example
    - ii. We exploit Earth for resources—some are 'renewable', others are not.
- 2. Scientific inquiry
  - a. process
    - i. Gather data from observations and measurements
      - 1. Assume consistent predictable system
      - 2. Try to discover underlying patterns
    - ii. Formulate plausible explanations for the data and patterns
      - 1. Multiple working hypotheses
      - 2. Deduce predictions beyond the data
    - iii. Devise tests and additional observations to investigate the predictions
    - iv. Revise, reject or accept hypothesis based upon results of the additional inquiries
  - b. Scientific method then elevates supported hypotheses to theory
    - i. Theory is rigorously tested
    - ii. Agrees with observable facts
    - iii. Not just an idea, but supported with evidence
  - c. Scientific method requires
    - i. Collection of facts
    - ii. Development of working hypotheses
    - iii. Tests of hypotheses
    - iv. Review of hypothesis based upon facts