Tuesday, 10/14/08

- Project ideas due Thursday
- Schedule Observation 10/16 or 10/30 at 6:40pm
- Large Hadron Rap
- Review Chapter 5
- Radio dating Exercise

Earth’s Structure

- Spherical but with slight equatorial bulge
- Layered by differentiation:
  - Thin crust…rocks, silicates
  - mostly solid mantle w/ convection
  - inner/outer core…iron, nickel
- Atmosphere
- Magnetic field

Earth’s Dynamics

- Heating/convection: impacts/radioactive decay
- Plate tectonics: rifting, subduction
- B-field: Interior dynamo, auroras, pole-switching
- Atmosphere:
  - Temperature variations: greenhouse gases
  - Coriolis Effects
- Precession

The Day

- One rotation of Earth
- Two ways to interpret:
  - Stars return to same position (23hrs56mins)
  - Sun returns to same position (high point@noon)
- Astronomers use sidereal days
- Calendar uses solar
- Variations to the solar day:
  - Depends on orbital motion of Earth
  - Varies throughout orbit (Kepler’s Second Law)
  - Use mean solar day

The Month

- Lunar cycle is 29.5 days
- 12 lunar cycles short of a full year
- Stretch some months to 30 or 31 days to make a full year

The Year

- Complete revolution about the sun
- About 365.244 days (about ¼ day fraction)
- Add a full day just every 4 years
- Except centuries not divisible by 400
- Gregorian Calendar
Other (Lunar) Calendars

• Muslim:
  – Purely lunar
  – Out of sync w/ seasons
• Jewish:
  – (corrected) lunar
  – Add a month from “time-to-time”
• Chinese:
  – (corrected) lunar