shaleGeology Final Study Notes

* Oxygen and Hydrogen Isotopes,
  + Anything that has the stronger bond will concentrate the heavier isotope
  + Fractionation diminishes at higher temps
  + Evaporation concentrate: 16^O in seawater, especially if no condensation
* Mass Wasting Mitigation
  + Rockfalls: nets, trenches, Rip-Rap prevents undercut at a cliff; mitigates against rockfalls very well.
  + Rock Slump mitigation: add mass to the toe, remove mass from the head; can also be Rip Rap
  + Mudflow mitigation: vegetation and drainage of water.
  + Rockslide: pins and bolts
* Flood mitigation
  + Flood frequency = annual probability \* recurrence interval
* Types of eruptions
  + Fissure eruption is quiets
  + Pillion is the most violent, pyroclastic flows
  + Phreatomagmatic eruption: magma
  + Phreatic: just gas
  + Sartseyan eruption: underwater
* Volcanic cones
  + Shield Volcanoes
    - Basaltic lava flows
  + Composite cones:
    - The most dangerous type of cones
    - Made of lava and ejecta in alternating layers
  + Cinder cones
    - Smallest but steepest
    - Ejecta (cinder); usually basic.

1. Introduction
   1. 11 question
2. Plate Tectonics: 12
   1. Hawaiian islands are volcanic islands b/c they have nothing to do with subduction zones
   2. Allusion Islands are an island arc
   3. Find plate boundaries by distribution of earthquakes
   4. Trenches associated with subduction zones
   5. Risk assessment: probability \* cost
   6. Plate motion is usually measured in cm
   7. Most abundant element on earth is iron
   8. Go over all types of mountains and their causes
3. Volcanic 14
   1. Mantle is ultrabasic
   2. Acidic and malefic is light in color; basic is dark
   3. Vesuvius (Pompeii) is example of pyroclastic flows
   4. Basic lava generated in upper mantle
4. Earthquakes 15
   1. Convergent plate is only boundary where deep-focus EQs can occur.
   2. Epicenter: surface center; Focus: real center
   3. 1 point Increase in amplitude on the seismograph is 10 times more
   4. Mercalli is damage scale measure intensity
   5. Elastic rebound\
   6. Max depth of EQ is 700 km
   7. Seismic recording station
   8. Moment magnitude is
5. Geological Structures
   1. Hoarsts occur at divergent plate boundaries
   2. review grabbons
6. Tsunami: 5
   1. Tsunamis can reach up to 100 meters in height
7. Mas wasting: 10
   1. Hummocky is indication of debris flow
8. Rivers and Flooding
   1. 100-year flood has a 10 percent probability
   2. Rolling, sliding and saltation is bed load
   3. Review meandering river stuff
   4. Meandering curves get wider and go downstream
9. Climate change: 14
10. Earth Resources: 14