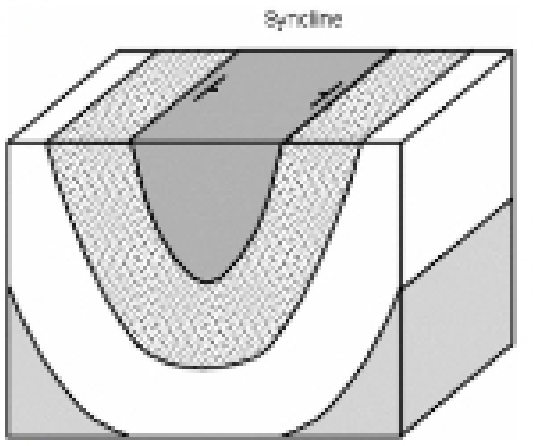
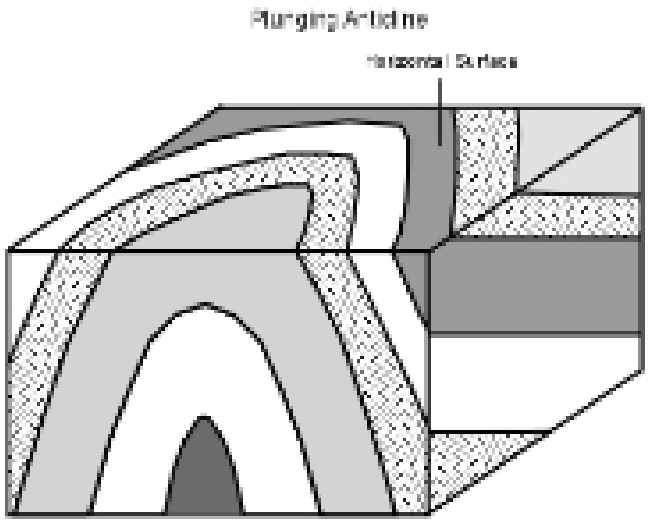
LECTURE 6.2

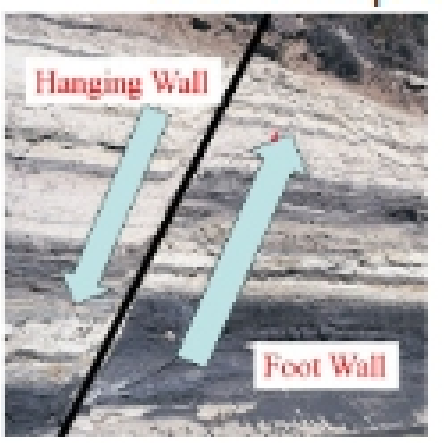
- Geology in the news
    - New hypothesis proposed for how plate motion began on earth
- Structural geology and tectonics forces
    - How we deform rocks after they were made
    - Topographic features v geologic structures
        - Canyons, mountains, ect are not geologic structures
    - Tectonic forces
        - Tensional
            - Stretching something apart
            - Pulled in 2 opposite directions
        - Compressional
            - Squishing something
            - Force from 2 ends
        - Shearing
            - Pulled in 2 different directions
            - Being pulled left and right
    - Responses to stress
        - Brittle
            - Eventually shatter if enough force applied
            - Force applied quickly
        - Ductile
            - Formed into a different shape
            - Force applied slowly
        - Response can vary based on
            - Rock type
            - Temperature and pressure (t/p) conditions
            - Speed of deformation
            -
- Types of structures
    - Folds
        - Folded or bent into different shapes
        - Occur in sets
        - Limbs
            - 2 and upper layer
        - Hinge
            - In between 2 limbs
            - See curves
        - Classifying folds
            - Based on 3 things
            - 1. Shape (in cross-section view—road cut view)
                - What view point ^^^side (from a car)
                -

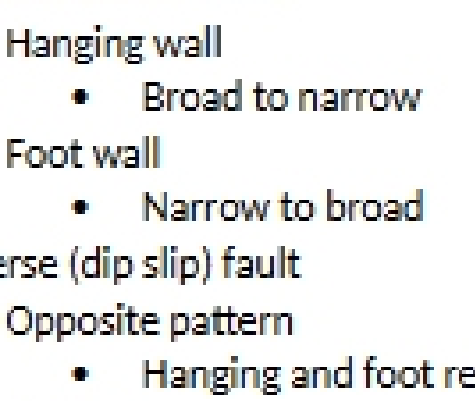
- Antiform shape
  - Bent up (arch)
- Synform shape
  - Bent down (U)
- Overturned
  - Antiform turned a little is overturned antiform
  - Turned completely on side is overturned

- 2. Age of the layers relative to each other
  - Anticline
    - Shape doesn't matter just where is the oldest layer of rock
    - Antiform and synform
    - Oldest layer is inside younger layers
  - Syncline
    - Youngest layer of rock
      - Younger layers inside the older layers
- 3. Geometry
  - Horizontal
    - 

  - plunging
    - 

  - Joints
    - Crack in the rock
    - Most common type
    - Force applied in different directions
    - Brittle structure, occur in sets, very common
  - Faults
    - Inches to 100s of miles

- Classified by slip direction
- Move in opposite directions
- Cracks then shifts
- Types
    - 1. Dip-slip faults (cross- sectional view)
        - 1a. normal (dip slip) fault
            - Inclined fault plane
        - 

            - Hanging wall
                - Broad to narrow
            - Foot wall
                - Narrow to broad
        - 1b. reverse (dip slip) fault
            - Opposite pattern
                - Hanging and foot reversed
        - 1c. thrust fault
            - Hard to identify
            - Plate boundaries (subduction zone)
            - Low and broad
    - *****DETERMINE HANGING AND FOOT WALL FIRST WHEN ID
    - 2. Strike slip faults (birds eye view—aerial)
        - Think about driving a car
        - Horizontal movement (parallel to the fault plane)
        - 2a. left lateral
            - 
            - Plates slide by
            - No matter what plate you're on the plate next to you appears to have moved to your left
        - 2b. right lateral
            - Opposite side move to the right