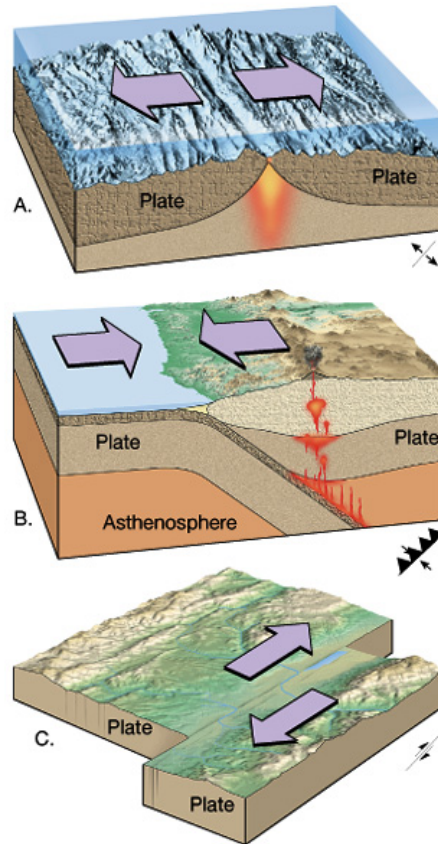


3 types of stress

- Tension at divergent boundaries creates thinning
- Compression at convergent boundaries creates folding
- Shearing at transform boundaries creates twisting



<http://falconsscience.files.wordpress.com/2008/02/plate-boundaries.jpg>

Strain – the amount of deformation in a rock due to stress

Elastic strain – rocks return to their original shape

Ductile/plastic – deformed rocks don't recover their shape

Brittle – rocks break under strain after reaching yield point

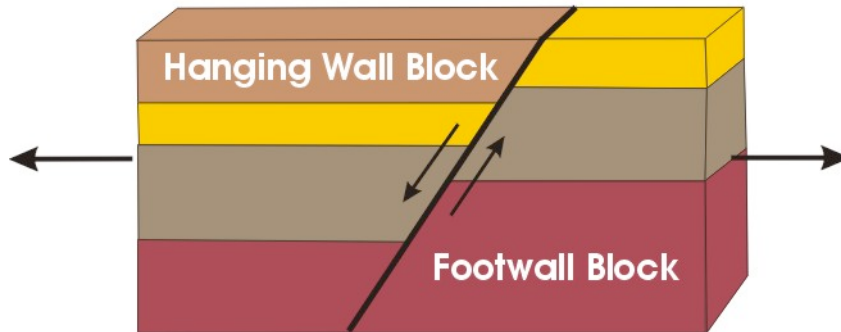
There are active and inactive faults. Active faults are or have the potential to move. Inactive faults will likely never move again.

Footwalls and Hanging walls

- Footwalls are below the fault. Think about where a miner would stand

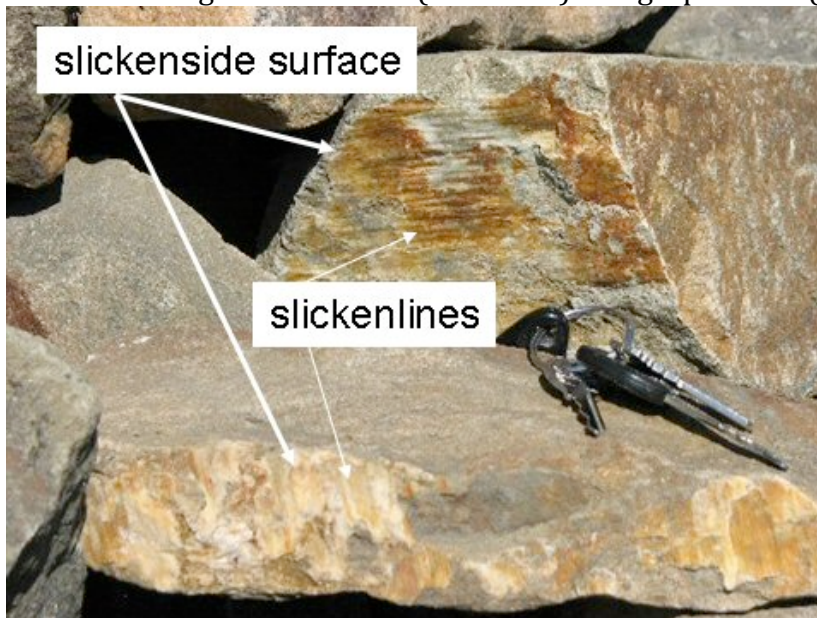
- Hanging walls are above the fault. Think about where a miner would hang his light

Normal Fault



<http://www.tanzanianroyaltyexploration.com/i/misc/image92-lg.jpg>

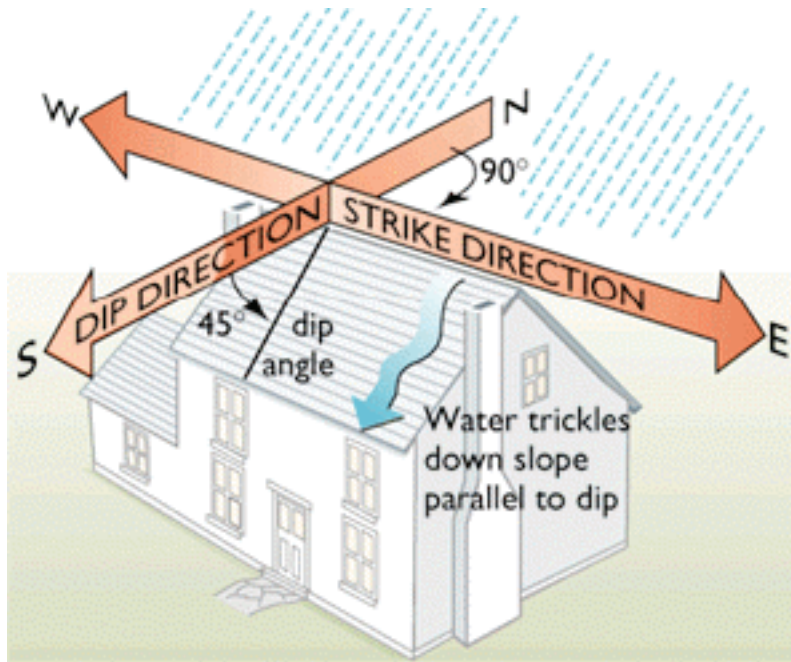
Slickensides – grooves in rock (striations) along a polished (smooth) fault plane



<http://www.baldeaglegeotec.com/geonotes/baldspt/BE%20boulder%20colluvium%205b.JPG>

Strike/Dip/Dip angle

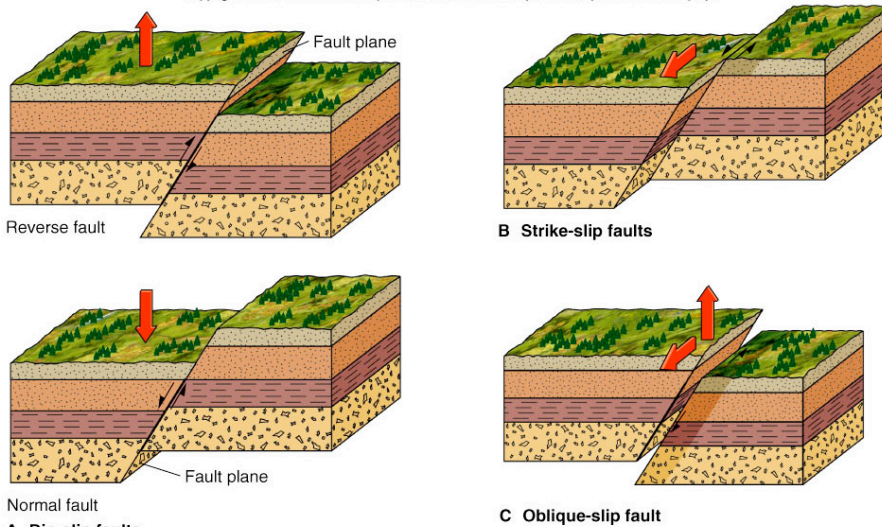
- Strike is a compass direction formed by the fault line going to the horizon
- Dip is the plane of movement of the rock
- Dip angle is the angle between the dip and strike



<http://www.uh.edu/~jbutler/physical/strike&dip.gif>

Three types of fault movement

- Dip slip faults – move up and down
- Strike slip faults – move horizontally
- Oblique slip faults – move in both directions



A Dip-slip faults
<http://www.indiana.edu/~g103/G103/week9/faultypes.jpg>

Tension stretches and causes the hanging wall to drop. This creates a normal fault. In the stretched area, a layer of rock is missing.

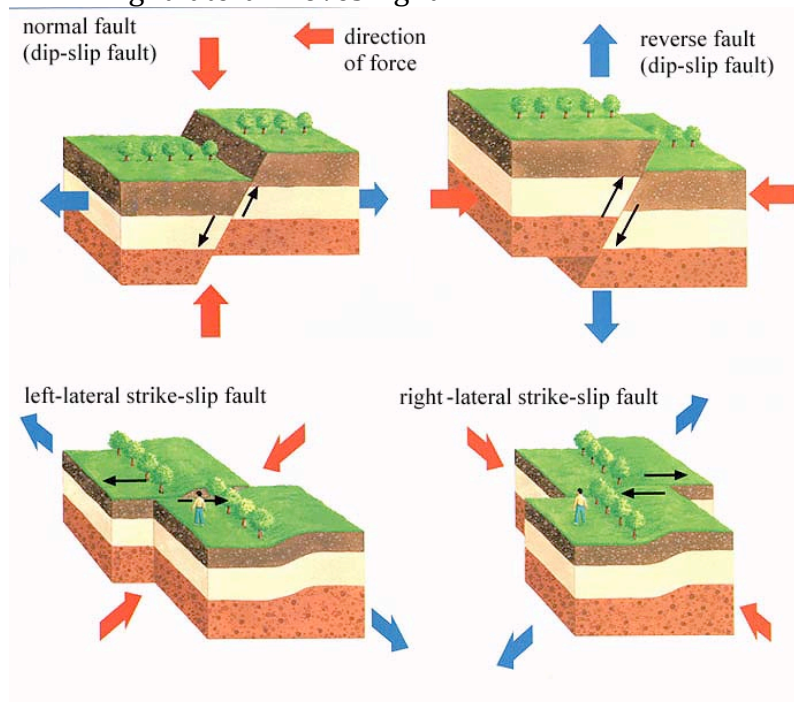
Compression causes the hanging wall to be thrust up. This creates a reverse fault. It thickens the crust and causes layers of rock to be doubled in the area of thrust.

A subset of reverse faults is thrust faults. They have a low angles usually around 20° – 30°

Faulting is a violent process. It creates multiple fault lines and fractures.

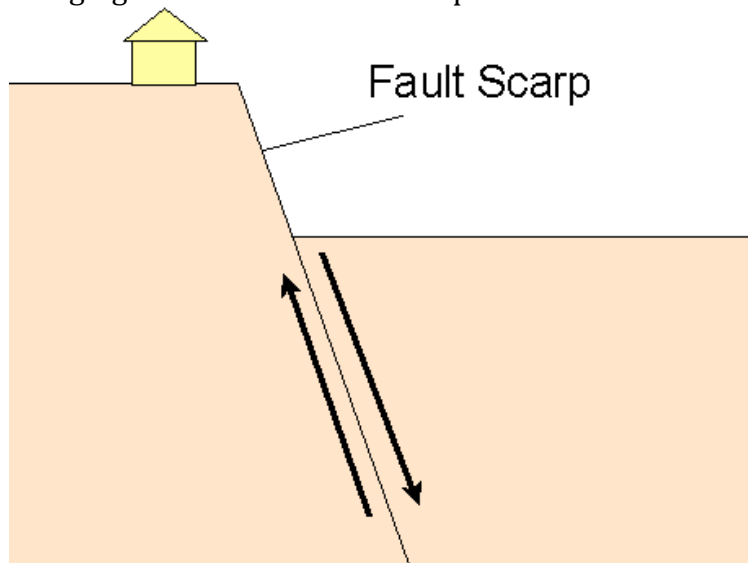
Strike slip faults

- Left lateral moves left
- Right lateral moves right



http://s4.hubimg.com/u/491651_f520.jpg

A fault scarp is basically a cliff. Scarp is short for escarpment. Think about Tarzan swinging from a vine off an escarpment.

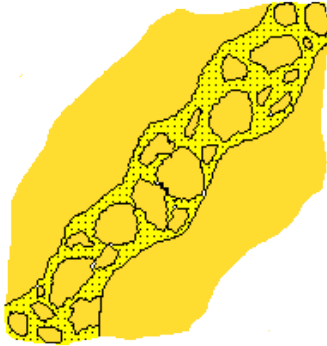


<http://faculty.weber.edu/bdattilo/images/faultscarp.gif>

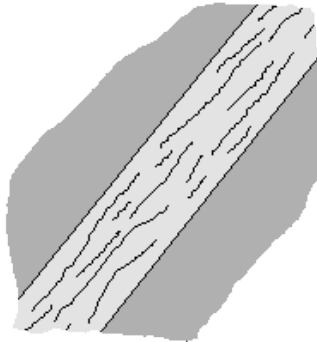
Fault zone rocks are usually mangled. This makes erosion easier and streams are often found along these zones.

Fault breccia is a zone with chunks or fragments of rock.

Fault gouge is a zone with almost completely destroyed/mangled rock.



Breccia



Gouge

<http://homepage.usask.ca/~mjr347/prog/geoe118/images/gouge.gif>

Seismic creep generally is a constant creep. It may be fast or slow. The rate of creep can change over time, depending on the build-up of stress on either side of the creep.



http://www.ngdc.noaa.gov/hazard/icons/small_res/23/23_465.jpg