Notes: Relative Dating

- Placing events in the proper sequence, oldest to youngest, by comparing.

5 Quick Rules

1. Principle of Superposition

- in an undisturbed pile of sediments (or sedimentary rock) unaffected by folding, faulting, etc. those on the bottom were deposited 1st followed by the layers on top with the youngest on top.

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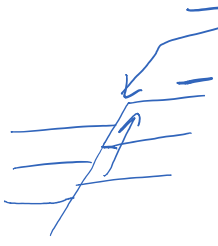
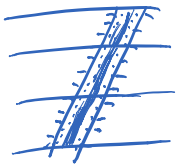
2. Principle of Horizontality

- especially on a large scale, sediments are commonly deposited in approximately horizontal, flat-lying layers (ie snow fall evens out lumps)
- folds and steep tilts are from deformation <u>after</u> deposition and lithification.

3. Principle of Cross-Cutting Relationships



- if a fault, dike or other pluton cuts across layers of sed. rocks, the sed rocks must have been there first.



- intrusions may have also metamorphosed the country rock adjacent to it (contact metamorphism)
- intrusion may have chilled margins along edges (small crystals since cooled faster)

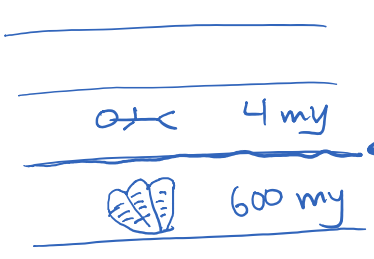
4. Principle of inclusion

- If a pluton contains xenoliths (included fragments of other rock(s)) the rock from which the xenolith came must pre-date/be older than the intrusion (xenolith/included fragment is older; true for pebbles in conglomerate too)

5. Unconformity

- a surface within a sedimentary sequence where there was a lack of deposition or even some erosion for a period of time.

A. Disconformity - an unconformity at which the sed layers above and below are parallel. (Hard to recognize; look for weathered surface on strata below, or very diff. ages right next to each other)



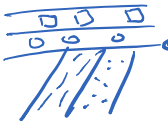
B. Angular unconformity

– bedding planes above and below the unconformity are not parallel (uplift and erosion has occured)

① deposition

② uplift/tilt

③ erosion + deposition



← angular unconformity

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