**Crustal Deformation**

Where plates **CONVERGE**, water is driven off the subducting plate, and added to the overlying lithosphere.
- This water acts as a **FLUX** to reduce the melting temperature, and cause hot solid rock to melt without a change in temperature.
- The lithosphere here is continental (granitic) in character, and the magma generated is **GRANITIC** (felsic) in chemical composition.

**Plate Tectonic Settings and Magma**

- **DIVERGENT PLATES** and MANTLE PLUMES produce magma by partial melting of mantle material due to pressure release.
- This magma is **BASALTIC** (mafic) in chemical composition, and the resulting volcanism has distinct characteristics.

**Tectonic environment of Magma**

- Draw a diagram showing the relationship of tectonic plate interaction and the location of magma formation. Indicate the chemistry of the magma likely to form.

**Oceanic basin tectonics**

**Plate Tectonic Settings and Magma**

- The type of magma generated in different plate tectonic settings is different.
- DIVERGENT PLATES and MANTLE PLUMES produce magma by partial melting of mantle material due to pressure release.
- This magma is **BASALTIC** (mafic) in chemical composition, and the resulting volcanism has distinct characteristics.
Names of fold types

- Synclinal fold
- Anticlinal fold
- Recumbent fold

Monocline

Plunging fold geometry

Mountain of folds

Tight folds

Recumbent anticline

Monocline

San Rafael Swell monocline

Plunging fold geometry
Plunging fold outcrop pattern

Legend for Tapestry of Time and Terrain Map
We are up to the 4th number of your V#
At this time, press the fourth digit of your v #
Such as, if your number is V00123456, you would press '4'
Do not go on to the next digit until I go to the next slide
If you make a mistake, reenter the proper number before we go on to the next slide
If you didn’t get an entry, enter the proper one for this slide, not the one for the previous slide
Do not push the GO button for any reason!!

Input the 5th digit now
At this time, press the next to last digit of your v #
Such as, if your number is V00123456, you would press '5'
Do not go on to the next digit until I go to the next slide
If you make a mistake, reenter the proper number
If you didn’t get an entry, enter the proper one for this slide, not the one for the previous slide
Do not push the GO button for any reason!!

Input the LAST DIGIT of your v # with the clickers
At this time, press the 6th digit of your v #
Such as, if your number is V00123456, you would press '6'
Do not go on to the next digit until I go to the next slide
If you make a mistake, reenter the proper number
If you didn’t get an entry, enter the proper one for this slide, not the one for the previous slide
Do not push the GO button for any reason!!

Type of fold with older rocks in the center, usually of arched geometry
1. Anticline
2. Basin
3. Dome
4. Recumbent
5. Syncline

Type of fold with younger rocks in the center, usually of trough geometry
1. Anticline
2. Basin
3. Dome
4. Recumbent
5. Syncline

Regional deformation with older rocks in the center, dipping away from center
1. Anticline
2. Basin
3. Dome
4. Recumbent
5. Syncline

Regional deformation w/younger rocks in the center, dipping toward center
1. Anticline
2. Basin
3. Dome
4. Recumbent
5. Syncline

Type of fold with limbs arranged so that one is on top of the other: overturned
1. Anticline
2. Basin
3. Dome
4. Recumbent
5. Syncline

San Andreas Fault stream offset
http://www.geology.wisc.edu/courses/g112/lecture3.html

Strike slip fault
San Andreas Fault orchard offset
http://www.geology.wisc.edu/courses/g112/lecture3.html

Tectonics of Western North America

San Francisco offset
http://www.geology.wisc.edu/~maher/air/air05.htm

Joints at Moab
Bryce Canyon, Utah

Exfoliation jointing

Exfoliation dome

Exfoliation joint formation

Columnar joints

Columnar tops

Exfoliation: https://www.wooster.edu/geology/bjordan/Iceland2003PK.html

Exfoliation jointing: https://www.cs.biu.ac.il/~plot/USA/

Exfoliation dome: http://www.ic.ucsc.edu/~casey/eart150/Lectures/Joints/JointsPics.html

Exfoliation joint formation: http://www.ic.ucsc.edu/~casey/eart150/Lectures/Joints/joints.htm

Columnar joints: http://www.ic.ucsc.edu/~casey/eart150/Lectures/Joints/joints.htm

Columnar tops: http://www.cs.biu.ac.il/~plot/USA/