Virtual Geologic Mapping Exercise

I have stationed several virtual strike and dip boards in the two map areas. In addition to having a strike and dip orientation, these boards have a corresponding hand sample that is meant to symbolize an outcrop of that rock type. The stations are numbered corresponding to the locations on the provided base maps. The outlines of the outcrops the stations represent are also provided on the base maps. Once you have decided on a rock identification for a given station, you can project that information out to the rest of the outcrop. If you are seeing two rock types at a station, you should think about how this information would be portrayed on a geologic map. You have two maps for this assignment, the first is a practice run, which you should do right away and talk to me about for troubleshooting. The second is the real-deal and you should complete it with the confidence and experience you have gained from the first one.

Your task is to make a geologic map and corresponding cross-section, legend and explanation of the main geologic features for the two base maps provided.

Deliverables:

a) Geologic map. Construct your map with all the requisite information (strike and dip, unit labels, geologic contacts (known and inferred), etc.
b) "Field notes". You are provided with two tables (one for each map) – these are set up like training wheels for field notes. One table is to document the strike and dip measurements for each location, the other is to document the rock types in the mapping area.
c) Cross section. From your mapping and the field relationships, draw a representative cross-section that shows the stratigraphic relationships between rock units and any structures present in the area. First determine where you would like to make your cross section, then draw this as a line on your map labeled A-A'.
d) Legend. This must be formatted according to the law of superposition and include a complete set of rock descriptions for the units on your geologic map and cross section.
e) A maximum one-page interpretation of the geologic history of the area. Include formation of the different rock types and a sequence of events that must have occurred for the rocks to be in the geologic setting that they now comprise.

Chapter 9 in the open geology text has a section on geologic maps, strike and dip and geologic structures.

A video tutorial on the Strike and Dip tool is here: https://www.youtube.com/watch?v=S7oxnjvuxkQ

Assessment rubric:

		Unsatisfactory	Unclear	Satisfactory	Excellent
Map 1	Completion & submission early	1	5	7	10
	Consultation for feedback	1	5	7	10
	Inclusion of feedback for map 2	1	5	7	10
Map 2	Geologic units labeled	1	5	7	10
	Strike and dip	1	5	7	10
	Neatness	1	5	7	10
Field Notes	Strike and dip data	1	5	7	10
	Rock type evidence	1	5	7	10
Cross-section	Geologic units labeled	1	5	7	10
	Structures correspond to strike & dip	1	5	7	10
	Topographic profile	1	5	7	10
	Neatness	1	5	7	10
Legend	Stratigraphy	1	5	7	10
	Unit descriptions	1	5	7	10
Geo. Hist.	Formation of rock types	1	5	7	10
	Geologic events	1	5	7	10
	Writing clear and free of typo. errors	1	5	7	10

Map 1

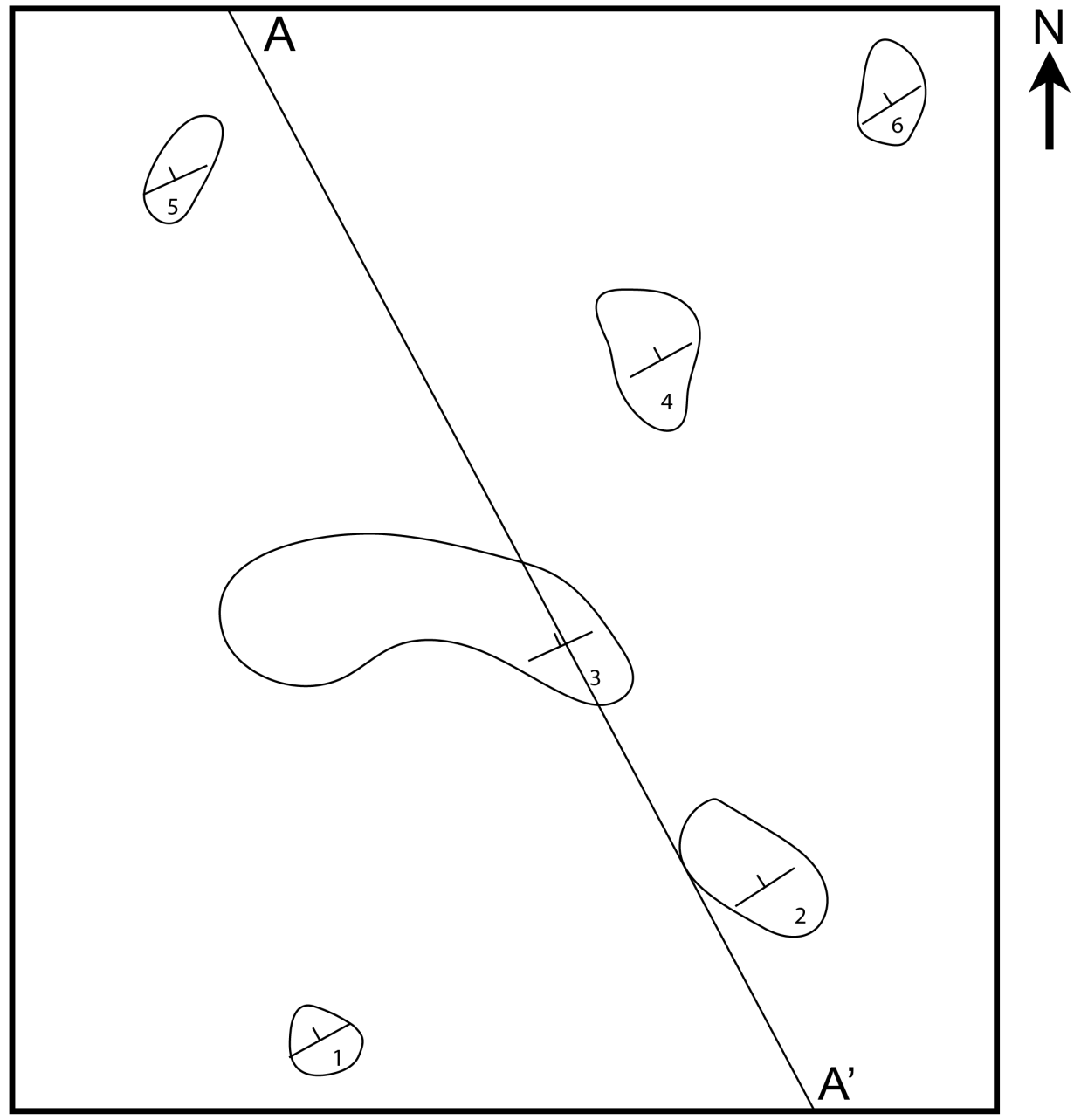
The rocks present in this mapping area are: conglomerate, marble, vesicular basalt, limestone, and sandstone. This virtual mapping area can be found here:
https://chorophronesis.geog.psu.edu/virtualexperiences/sad/1/index.html
Access it using the keycode "bumperCubes"

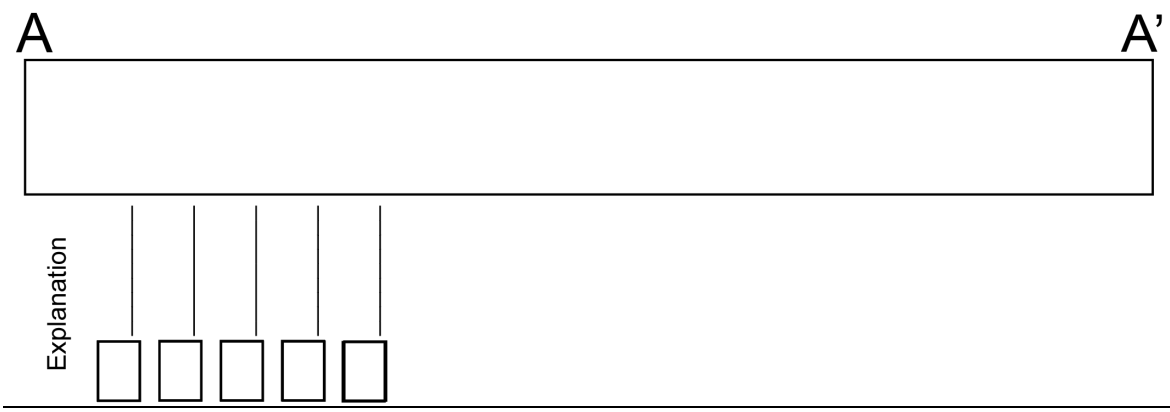
Field Notes

Station	Strike	Dip	Lithology
1			
2			
3			
4			
5			
6			

Lithology	General Rock Type	Distinctive Characteristics (Observed Evidence in the Field)	Possible Environment of Formation
Conglomerate			
Marble			
Vesicular basalt			
Limestone			
Sandstone			

Name: Date: Title:





Map 2

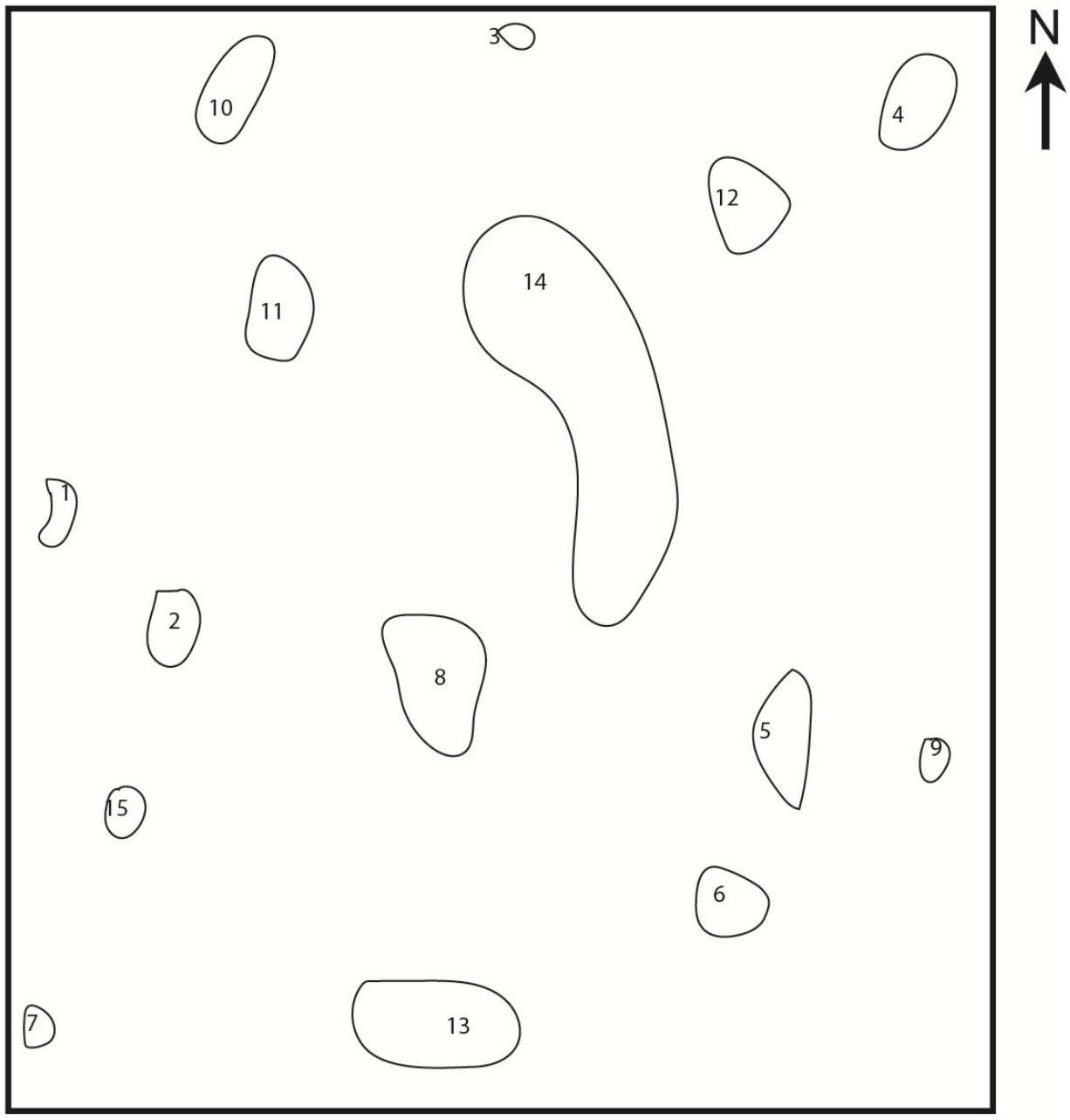
The rocks present in this mapping area are: conglomerate, marble, granite, limestone, and sandstone. This virtual mapping area can be found here:
https://chorophronesis.geog.psu.edu/virtualexperiences/sad/4/index.html
Access it using the keycode "bumperCubes" OR if you would like to see what these locations would look like as outcrops rather than boards with handsamples; "bumperRocks".

Field Notes

Station	Strike	Dip	Lithology
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Lithology	General Rock Type	Distinctive Characteristics (Observed Evidence in the Field)	Possible Environment of Formation
Conglomerate			
Marble			
Granite			
Limestone			
Sandstone			

Name: Date: Title:



Legend