

Name (print)_____ NetID _____

Name (print)_____ NetID _____ Section_____ TA _____

Name (print)_____ NetID _____

Name (print)_____ NetID _____

Objectives: To observe rocks in their native habitat. Note: unlike pictures of rocks, real rocks are hard and sometimes sharp, so they can hurt you. Every year search and rescue has to retrieve hikers injured or killed in Rock Canyon; joining their ranks is NOT one of the objectives of this assignment.

Please follow a few simple safety rules. 1. Go up with a group. 2. Stay on the trail. 3. Dress appropriately. Wear sturdy hiking shoes, bring a jacket even if it is warm on campus, and wear sunscreen. 4. Take water.

Instructions: 1. Get a copy of the *Rock Canyon Field Guide*. It is available in the geology department office for \$2, or you can borrow a copy from another student. One copy is sufficient for a large number of students. 2. Go to Rock Canyon. Take N. Temple Dr. (the road north of Provo Temple) east until you come to the parking lot at the mouth of Rock Canyon. From there you'll need to park and walk. 3. Look around and answer the questions below.

1. At the mouth of the Canyon, Put your hand in a U shape (glacially carved valley) and compare it to the shape of the canyon. Now put your hand in a V shape (river cut valley) and compare it to the shape of the canyon. Which model fits Rock Canyon?
2. Read **Number 3** on the Rock Canyon Field Guide and look at the cross section on the guide. Using the Law of Superposition, what is the oldest deposited layer exposed in Rock Canyon (its name is in the field guide and in your text)? How old is it? Can you see it at the trail head? (Hint it's the brown layer not the orange layer).
3. What is the next oldest rock unit (hint it's the orange layer)? And how old is it? How big is the time gap between these two layers?
4. What is the correct geologic name for a time gap like the one that occurs at the boundary between the orange and brown rock layers? As you begin to hike up the trail, look for the boundary in the rocks and trace it on the picture to the right.



5. Hike up the Rock Canyon Trail, past the small chlorine plant building, to the gate. This is an area locally called “the Kitchen.” It’s stop 5 on the Rock Canyon Field Guide. Get close to the rocks here and describe what you see in the space below. What common material does it look like? How might it have been deposited? What type of rock (igneous, metamorphic, sedimentary) is here? Can you see little grains of other rocks? What color is it? What does it feel like (texture)?



6. Bedding planes are depositional layers of rock units.
- According to the laws found in chapter 26, how were the bedding planes originally deposited?
 - Are the rock beds you see in the kitchen vertical or horizontal? What does this tell you?
 - Sketch the rock layers just north of the kitchen. Be sure to include tilting and folding.
7. Hike a bit further up the canyon. Off to the left you will see gray layers atop the orange layers. Which layer is older? What process would cause the unconformity between the two?
8. You have now gathered all the information you need to create a verbal geologic history for Rock Canyon like the one for the Grand Canyon found in the 10 captions for figure 26-14. Put together your geologic history including the events listed below in the correct order.
- Each of the rocks (the tillite, quartzite, and limestone) is deposited.
 - Erosion forms two separate unconformities.
 - Rock units are folded and tilted.
 - Cutting of the canyon.