

**Study Guide #2**

This study guide consists of a “focus on” section, sample questions to help prepare you for the second exam, and some crossword puzzles.

**Focus On:**

**Ch. 14**

- angle of repose (when does it apply and when does it not?)
- differences between slides and slumps
- you should concentrate on the local landslide situations presented in class. Where are landslides most likely to occur? Why? What are the factors that decrease the stability of the hillslopes in the Puget lowland region?
- What factors weaken a hillslope? (such as pore pressure, orientation of rock layers, undercutting of a steep slope)
- What are some measures that may be taken to increase the stability of a slope?

**Ch. 17**

- movement of ice and the effects of the movement on the ice (mechanisms, sides vs. the middle, top vs. the bottom, crevasses)
- till vs. outwash
- advancing glacier vs. retreating glacier vs. movement of ice
- pluvial lakes
- annual snow line and the formation of glaciers (zones of accumulation and ablation)
- formation of moraines
- there will be a matching question in which you will match glacial features (such as a U-shaped valley) with one of three choices: 1) feature was eroded by the ice, 2) feature was deposited directly by the ice; or 3) feature was deposited by the meltwater from the ice
- information on the ice sheet glaciation of western Washington presented in class.

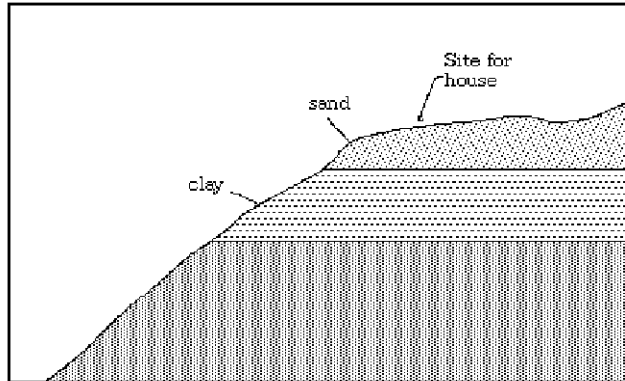
**Chapters 15 and 16:**

- How does groundwater move through the ground? You should be familiar with the group problem we did in class which asked if wells would be contaminated if a landfill were created in the vicinity.
- You should be familiar with the following terms/concepts: aquifer, water table, hydraulic gradient, perched water table, cone of depression, porosity, and permeability
- We covered the groundwater problems in the San Juan Islands of Washington. You should be familiar with these problems.
- What happens to the sediment in a river when a dam is constructed across the river? You should be able to discuss bedload, suspended load, and dissolved loads.
- Be able to describe the process of river meandering-- where does the river erode and deposit?
- What are the conditions which create braided rivers?
- What are the factors that determine the velocity of a river? You should be able to apply these four different factors.
- What is base level and how does it affect the form and function of the river?
- How does urbanization affect a stream? You should be able to read and interpret a hydrograph.
- In class we described three ways in which water gets to a stream. You should be able to apply that information to a hydrograph.

**Sample questions for Exam #2**

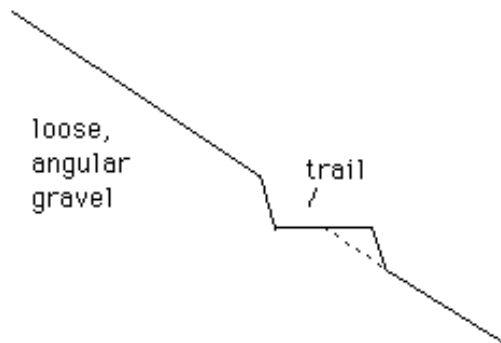
1. Hill "A" is less steep than Hill "B." However, B is judged to less likely to experience a landslide than A. Explain such a determination.

2. A house is planned for the site noted in the diagram to the right. Is this a good site for the house? Discuss your reasoning.



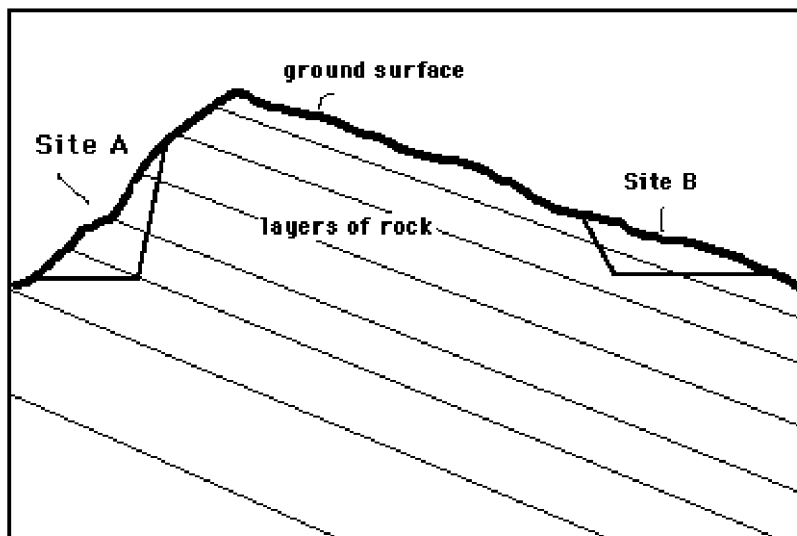
3. A friend of yours has just moved here from Kansas. He/she is looking for a house to purchase in this area. What five things could you tell him/her to help avoid a site that could be involved in a landslide?

4. If a worker cuts into the side of a hill that is made of loose gravel to make a trail, has the worker increased the angle of repose? Explain your answer.



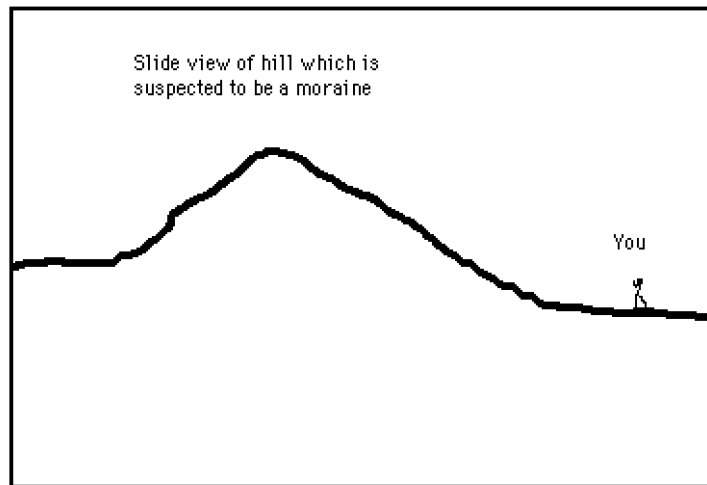
5. In the cross sectional view below, you have a choice of constructing a road at site A or site B. Which of the sites would be the best? Defend your choice. Are there any negative aspects to the site you chose?

**Cross-sectional (side) view of a mountain**

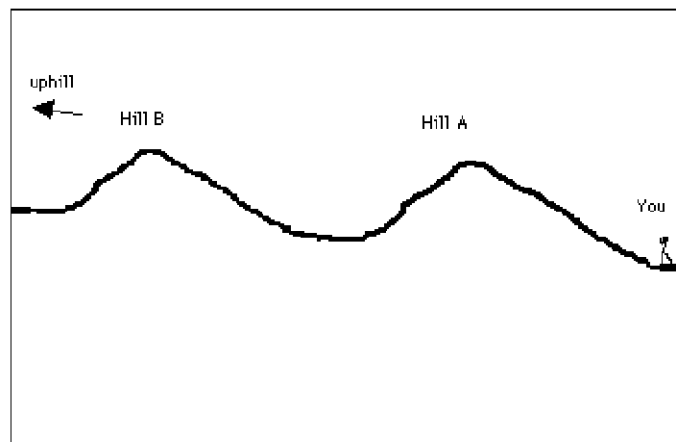


6. The ice in a retreating glacier is moving downhill. True or False? Explain your reasoning.

7. In the diagram below, you are observing the hill illustrated and you suspect that the hill is a moraine. What specific characteristics could you use to confirm that this is a moraine? (The more ideas, the better as long as they "work")

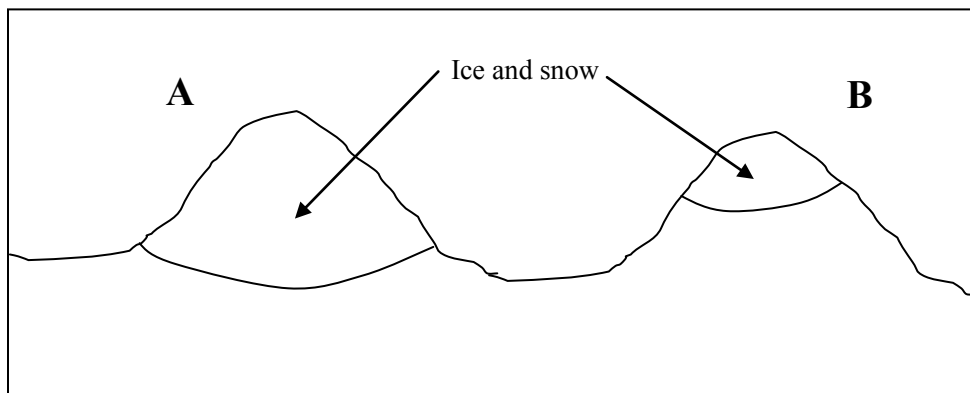


7b. In the diagram to the right you have determined that the hills are moraines, but which moraine is older (older means that was formed longest ago)? Explain your reasoning.



8. Could there be a glacier at the Equator? Explain your answer.

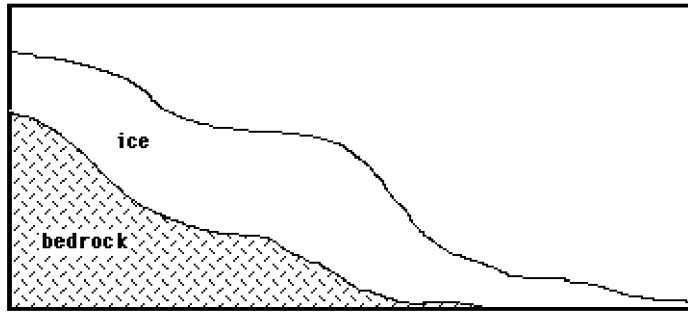
9. Mountains A and B have ice and snow. Which mountain has the highest snowline? Which mountain will have the greatest volume of glacial ice?



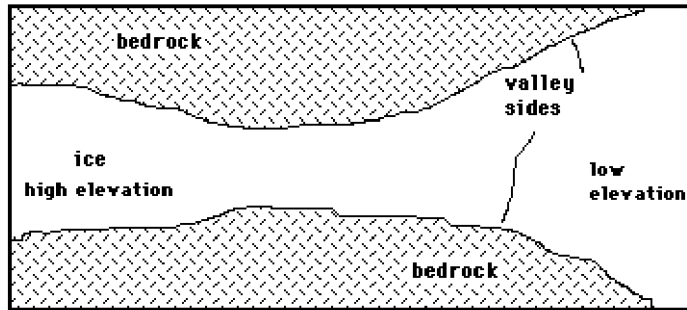
10. In the diagram to the right, draw long arrows for the areas where the ice would be moving fastest and short arrows where the ice would be moving the slowest. Explain the rationale you used.

In the same diagram, note where one would expect to find crevasses.

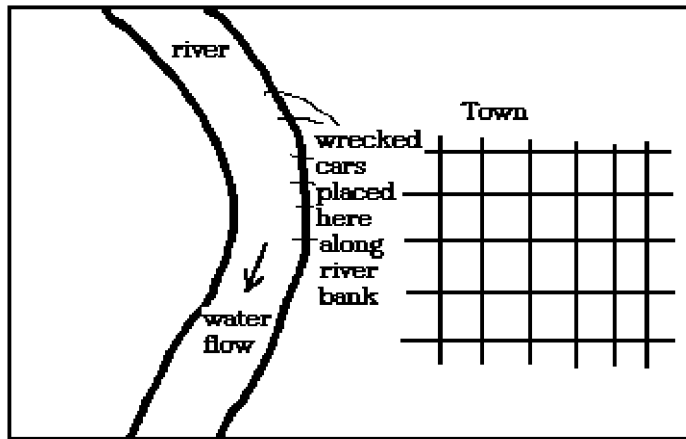
**Cross-sectional view of a glacier**



**Plan (top) view of the same glacier**



11. In the diagram to the right, a small town in the southern US, has experienced erosion problems along the river-bank closest to the town. Unfortunately, this small town could not afford to properly reinforce the banks of this river, so they placed wrecked cars along the bank of the river to control the erosion. During the next year, the river flooded the town after a moderate storm (the same sized storm in the past did not create the same degree of flooding). Assume all other factors were the same along the river through time other than the placement of the car bodies on the bank of the river. Explain how the placement of the wrecked cars along the river bank created the flooding in the town.



12. River A has lots of white water (rapids), while river B is relatively smooth on the top surface. Both river A and B have the same velocity. Explain how one of these rivers can have white water (rapids) and the other have a smooth water surface and yet have the same velocity.

13. On the cross-section below, a river is flowing toward the right. The river enters a reservoir at the point marked A. Water is released at the base of the dam.

a) What are the effects of the dam on the river above point A?

b) What will happen to the bed, suspended, and dissolved load as the water enters the reservoir? Explain your answer.

c) Will erosion or deposition occur at point B? Explain your answer.

