

Groundwater

1. Understand the main processes in the water cycle (hydrologic cycle).
2. Understand the terms: permeable, impermeable, porosity, aquifer, confined aquifer, water table, recharge area, artesian water, drawdown, cone of depression.
3. What are the hazards of groundwater withdrawal (groundwater mining)?
4. What is the difference between the saturated and unsaturated zone?
5. How do confined and unconfined aquifers differ?
6. What are the types of porosity and their relationship to permeability?
7. What is the origin of artesian wells?
8. What is a perched water table? How does it form?
9. How does recharge and discharge of groundwater occur?
10. Where do springs form?
11. What happens to the water table when wells are pumped?
12. What is the origin of geysers and thermal springs?
13. What are the chemical reactions that cause the dissolution of carbonate rocks?
14. What features are characteristic of karst topography?
15. What are speleothems? Know which is on the ceiling and floor. How do they form?
16. How does petrified wood form?
17. What are geodes and how do they form?
18. Define the water table.
19. Explain the difference between porosity and permeability and how each relates to the movement of groundwater.
20. Describe springs, geysers, wells, and artesian wells.
21. Discuss the factors that contribute to groundwater contamination.
22. Describe the geologic work of groundwater and list several features that are produced by groundwater activity.

Glaciers and Glaciation

23. What are valley or alpine glaciers?
24. What are continental glaciers or ice sheets and where are two examples?
25. How much will sea level rise when the ice sheets melt?
26. Understand the two types of glacial movement (plastic flow and basal slip).
27. What are crevasses and what do they indicate about the forces and the terrain below?
28. Understand the zone of accumulation, snowline, zone of wastage, and calving and creation of icebergs.
29. What are differences between the two types of glacial erosion (plucking and abrasion) and what do they produce?
30. Know the differences between the landforms created by glacial erosion (horn, arete, truncated spur, cirques, pater noster lakes, tarns, glacial trough) and the differences between the landforms created by glacial deposition (glacial drift - both till and stratified drift, lateral moraine, medial moraine, end or terminal moraine, ground moraine, recessional moraines, kettles, eskers).

31. How much lower was sea level during the coldest part of the Ice Age?
32. How far south did the continental glaciers or ice sheets get in North America during the present Ice Age?
33. Understand the theories of how ice ages occur (plate tectonics and variations in earth's orbit).

Deserts and Winds –

1. What determines *dry climate*? Describe the distribution and causes of Earth's dry lands.
2. What factors influence the location of the world's deserts?
3. Where are the low-latitude deserts (latitude and Tropics of —), what causes them, and what are some examples.
4. Where are the middle-latitude deserts, what causes them, and what are some examples?
5. How do rain shadow deserts form?
6. What is an ephemeral stream?
7. Understand the typical features of the Basin and Range province (interior drainage, playa, alluvial fan, bajada, inselberg).
8. What is the process of saltation?
9. How does desert pavement form?
10. What are cross beds, how are they formed, and how can you tell wind direction from them?
11. What are ventifacts? How do they form?
12. What are the differences between the shape, sand supply, and wind direction between: barchan dunes, transverse dunes, longitudinal dunes, parabolic dunes, and star dunes?
13. What are the two common sources of windblown silt for loess deposits?
14. Summarize the evolution of the Basin and Range region of the United States.
15. List and describe the ways that wind transports sediment.

Shorelines and the Ocean Floor - CC - Chapters 14, 18

Shorelines PCC - (Chapter 15) and Oceans (p. 19-22, 209-218, and 498-516)

1. How is an ocean wave described and how does it move?
2. Where is wave erosion the greatest on coastlines and what are the features produced by this erosion?
3. What are the depositional features associated with barrier island coastlines?
4. What effects do storms have on coastlines?
5. What factors influence the growth and location of coral reefs?
6. What causes tides and how do they influence shorelines?
7. What causes longshore drift and what direction is longshore drift along the Texas Coast?
8. How do marine terraces form? Why are they commonly flat?
9. What is the shape of an equilibrium shoreline?
10. What is a storm surge? What are the features produced by storm surges?