

GEOL 02: Historical Geology with Lab

Final Study Guide

Plate Tectonics

What evidence exists for plate tectonics? How can we determine that rates of plate movement? What are magnetic anomalies? How does ocean depth relate to ocean crustal age? Describe the earthquake cycle by describing the vertical deformation of Earth's crust. How does a ghost forest form?

Volcanoes

Describe some different volcanoes and what controls their shape. Why are basaltic rich volcanoes found at hot spots? What type of volcanoes are formed at subduction zones? What is the source of magma for volcanic arcs? What type of volcanism is responsible for the Columbia River Flood Basalts? What are large igneous provinces? What are a couple example LIPs? When did the CRFB eruptions happen? How does columnar jointing form? Why would there be pillow basalts in a flood basalt?

Archean and Proterozoic

What is the time span for the Archean and Proterozoic? What are the three major time periods prior to the Paleozoic Era? What are some lifeforms that are found in the geologic record from before the Paleozoic Era? What are shields, platforms, and cratons? What is a flysch deposit and can you name one that is found locally? What are the Orogenies during these time periods and what and where is there evidence for them? How are banded iron formations created? What is Rodinia and how long did it last? Was there glaciation during this time period and, if so, what is the evidence for this? What is a supercontinent?

Paleozoic

What is the time span for the Paleozoic? What are the three major time periods in the Paleozoic? What are some lifeforms that are found in the geologic record from the Paleozoic? What are regressions and transgressions? Describe the stratigraphic evidence for regressions and transgressions. What are the three Orogenies on the east coast of North America during the Paleozoic (was it the east coast at this time?)? What are the west coast Orogenies? What geologic evidence exists for these Orogenies?

Mesozoic

What is the time span for the Mesozoic? What are the major time periods in the Mesozoic? What are some lifeforms that are found in the geologic record from the Mesozoic? What are accreted terranes?

GEOL 02: Historical Geology with Lab

Final Study Guide

What are the west coast Orogenies? What are mass extinctions? What are some explanations for the mass extinction at the end of the Mesozoic?

Cenozoic

What is the time span for the Cenozoic? What are the major time periods in the Cenozoic? What are some lifeforms that are found in the geologic record from the Cenozoic? What are the west coast Orogenies? What is Siletzia and how did it form? What is an ophiolite? Describe the layers in an ophiolite and how they form. What is a slab gap? Is there one nearby (if so, where is it)? what are horsts and grabens and how do they form?

Climate

What drives glacial/interglacial cycles? Describe how the angle of incidence and Milankovitch cycles conspire to generate ice sheets and glaciers. What happens to sea level during glacial and interglacial cycles? How do we know this? What is a proxy? What is a good proxy for ocean water temperature? What is a good proxy for sea level? Describe several geologic evidences for past glaciation. What are pluvial lakes? Why did pluvial lakes form? What affect did ice sheets and pluvial lakes have on the crust (vertical motion)? What are moraines? Where can we find some moraines?

Mapping

What is an elevation contour? What are index contours? How might one calculate the gradient of a slope? What is the “rule of vs?”