
First Semester: Final Exam Study Guide

Rocks and Minerals

Text chapters 3 and 4

Academic Knowledge and Skills:



- 16b - classify rocks by their formation (igneous, metamorphic, sedimentary) (GPS)
- 16b1 - explain the rock cycle
- 16b2 - investigate the contributions of minerals to rock composition (GPS)
- 16b3 - discuss the importance of mineral and rock resources to society

Essential Questions:

1. What is the definition of a mineral?
2. What is the difference between a rock and a mineral?
3. In what ways do minerals contribute to the formation of rocks?
4. Why are minerals an important resource for society?
5. How are igneous rocks formed?
6. How are metamorphic rocks formed?
7. How are sedimentary rocks formed?
8. How are rocks classified?
9. What is the rock cycle?
10. How can rocks change from one type to another?

Related vocabulary:

Inorganic, crystal, element, compound, mixture, Mohs hardness scale, mineral, streak, luster, density, cleavage, fracture, fluorescence, magma, lava, solution, vein, gemstone, ore, smelting, alloy, texture, grains, igneous rock, sedimentary rock, metamorphic rock, extrusive rock, basalt, intrusive rock, granite, porphyritic texture, sediment, erosion, deposition, compaction, cementation, weathering, clastic rock, organic rock, chemical rock, foliated, rock cycle, molten rock, mineral formation, metamorphism,

Paleontology

Text chapter 6



Academic Knowledge and Skills:

- 18 - describe Earth's geologic history
- 18a - interpret the geologic history of Earth based on the principles of uniformitarianism, superposition, and original horizontality
- 18a1 - apply the law of superposition to determine the relative age of rocks
- 18b - describe how fossils show evidence of the changing surface and climate of Earth (GPS)
- 18b1 - describe the evidence used to provide historical background for the geologic time scale
- 18b3 - discuss Earth's history and recognize that change occurs constantly and slowly over time

Essential Questions:

1. What is the principle of uniformitarianism and how does it relate to geology?
2. What is a fossil?
3. Explain original horizontality.
4. How does the Law of Superposition determine the relative age of sedimentary rock?
5. What are some examples of fossils showing evidence of the changing of Earth's surface?
6. If you found a fossilized shell on a mountaintop, what could you infer about how Earth's surface and climate have changed since the shell was formed?
7. What are some examples of fossils showing evidence of the changing of Earth's climate?

Related vocabulary:

Fossil, sedimentary rock, petrified fossils, mold, cast, carbon film, trace fossils, scientific theory, evolution, extinct, relative age, absolute age, law of superposition, extrusion, intrusion, fault, unconformity, index fossil, atoms, element, radioactive decay, half-life, eras, periods, epochs, geologic time scale, original horizontality,

Ecology



Text chapter 5

Academic Knowledge and Skills:

- 19 - compare various sources of energy and describe their uses and methods of conservation (GPS)
- 19a - explain the role of the sun as the major source of energy and its relationship to wind and water energy (GPS)
- 19b - identify renewable and nonrenewable resources (GPS)
- 19b1 - discuss how consumption of energy impacts the environment and society
- 19b2 - discuss the importance of conserving energy
- 19c - describe methods for conserving natural resources such as water, soil and air (GPS)

Essential Questions:

1. How might the conservation and resource strategies used today affect your future? Give examples.
2. How can land be used so as to minimize erosion?
3. In what sense is energy from wind, hydroelectric, coal, and oil really from the sun?
4. Which strategies that your family could use to conserve energy would be easiest and why?
5. Why is soil considered a nonrenewable resource?
6. How might it be possible to run out of a renewable resource? Give examples.

Related vocabulary:

Fuel, combustion, fossil fuel, hydrocarbon, petroleum, refinery, petrochemical, renewable resource, solar energy, hydroelectric power, biomass fuel, geothermal energy, energy conservation, efficiency, insulation, greenhouse effect, natural resources, non-renewable resource,

Plate Tectonics



Text chapters 7, 8 and 9

Academic Knowledge and Skills:

- 16 - investigate the composition and formation of Earth's surface (GPS, ITBS)
- 16a - compare and contrast Earth's crust, mantle and core including temperature, density and composition (GPS)
- 16c - describe the composition of soil as consisting of weathered rocks and decomposed organic material (GPS)
- 17 - describe processes that cause gradual changes in Earth's surface (GPS, ITBS)
- 17a - demonstrate how the deformation (e.g., tension, compression and shearing) of the Earth's plates produces landforms
- 17b - recognize lithospheric plates constantly move and cause major geological events on the earth's surface (GPS)
- 17b1 - demonstrate how convection currents within the earth produce movement
- 17b2 - describe the effects of plate movement on the lithosphere, including the ocean floor or under ocean basins
- 17b3 - explain the processes that produce volcanoes and earthquakes
- 17b4 - analyze the relationship between volcanoes and earthquakes

Essential Questions:

1. How does the movement of lithospheric plates cause major events on Earth's surface?
2. How do the plates move?
3. What happens at a divergent plate boundary such as the mid-ocean ridge?
4. What happens at convergent plate boundaries known as subduction zones?
5. What happens when continental crust meets continental crust at a convergent boundary?
6. What happens at transform boundaries?
7. What is the theory of Plate Tectonics?
8. What evidence do scientists have that the continents were once joined together?
9. Why do mountains often occur in ranges that are thousands of kilometers long?

10. What can fossils tell us about movements of the plates in the past?

Related vocabulary:

Seismic waves, pressure, crust, mantle, lithosphere, asthenosphere, outer core, inner core, heat transfer, radiation, conduction, convection, density, convection current, Alfred Wegner, Pangaea, continental drift, fossil, mid-ocean ridge, sea-floor spreading, sonar, deep-ocean trench, subduction, plate, scientific theory, plate tectonics, fault, transform boundary, divergent boundary, rift valley, convergent boundary, earthquake, stress, shearing, tension, compression, deformation, strike-slip fault, normal fault, hanging wall, footwall, reverse fault, fault-block mountain, folds, anticline, syncline, plateau, focus, epicenter, P waves, S waves, surface waves, seismograph, magnitude, Mercalli scale, Richter scale, moment magnitude scale, liquefaction, aftershock, tsunami, volcano, Ring of Fire, magma, lava, island arc, hot spot, magma chamber, pipe, lava flow, crater, silica, pahoehoe, aa, pyroclastic flow, active, dormant, extinct, hot spring, geyser, geothermal energy, shield volcano, cinder cone, composite volcano, caldera, volcanic neck, sill, batholiths, continental crust, oceanic crust, plate boundary.

Weathering, Erosion, Deposition and Soil



Text chapters 10, 11 and 12

Academic Knowledge and Skills:

- 17c - explain the effects of physical processes (weathering, erosion and deposition) on geological features (GPS)
- 17c1 - (old 17a2) - describe the formation of a river system
- 17d - discuss the effects of human activity on the erosion of the Earth's surface (GPS)

Essential Questions:

1. What is weathering?
2. What is erosion?
3. What is deposition?
4. What is soil?
5. How are different soil types affected by erosion?
6. How can land be amended to reduce the amount of soil erosion?

7. How do the processes of weathering, erosion, and deposition form a river system?
8. How does runoff contribute to the formation of a river?
9. What roles do weathering, erosion, and deposition play in the rock cycle?

Related vocabulary:

Weathering, erosion, mechanical weathering, abrasion, ice wedging, chemical weathering, permeable, soil, bedrock, humus, loam, soil horizon, topsoil, subsoil, decomposers, development, desertification, sod, Dust Bowl, contour plowing, conservation plowing, soil conservation, fallow, crop rotation, land reclamation, deposition, sediment, mass movement, runoff, rills, gully, stream, river, tributary, drainage basin, divide, flood plain, meander, oxbow lake, alluvial fan, delta, groundwater, stalactite, stalagmite, karst topography, energy, plucking, clay, composition, organic,

