Earth Science Final Exam Study Guide
Answer Key

Topographic Maps

1. 10 m
2. South
3. A depression/crater
4. A=20m; B=91-99m
5. Steep area = southeast of Oak Hill; Shallow area = Northeast of Bostwick bay

Composition of Earth

1. Earth = Silicon & Oxygen
2. Universe = Hydrogen & Helium

Minerals

1. Coal, Steel, Pearls, Ice
2. 90%
3. Silicon & Oxygen
4. Minerals made of only one type of atom. Ex: Gold, Silver, Copper
5. Moh's Hardness Scale
6. Diamond; Talc
7. Density
8. Naturally occurring, inorganic, solid, definite chemical composition, definite crystal structure
9. Streak

Igneous Rocks

1.

	Intrusive	**Extrusive**
Also called:	Plutonic	Volcanic
Cooling Rate	Slow	Fast
Crystal Size	Large	Small
Where does it form?	Underground	Above ground

2.

	Felsic	Mafic
Properties	Light in color, high in silica, contains quartz, feldspar, mica, & other silicate minerals	Dark in color, high in iron & magnesium, low in silica

3. From molten rock (magma or lava)

Metamorphic Rocks

1. Deep within the Earth
2. Form from heat & pressure (NOT from melting)
3. Foliated (banded) or non-foliated

Add info about regional & contact metamorphism

Sedimentary Rock

1. When sediments become cemented (glued) together to form a sedimentary rock
2. From pieces of other rock or sediment glued together
3. Sediments become buried, compacted, cemented then lithified (from the pressure) to become a sedimentary rock
4. On the surface of the Earth
5. From remains of other organisms, usually shells from sea creatures
6. Fossils

Rock Cycle

1. By how they form
2. Any can become sedimentary, igneous, or metamorphic

Weathering, Erosion, & Soil

1. Ice wedging = mechanical, Hydrolysis = chemical, Abrasion = mechanical, Exfoliation = mechanical, Oxidation = chemical, Carbonic acid = chemical, jointing = mechanical
2. The wearing away of a rock from contact with other rocks (occurs in desert regions)
3. Oxidation
4. Carbonic acid (chemical weathering)
5. Quartz
6. Type of cement holding together
7. Rich organic material in soil from decayed organic matter
8. Type of rock & climate

Know the soil horizons, draw a profile

Surface Water

1. High land that separates two watersheds
2. The material that a river carries; solution, suspension, bed load (know what type of material is carried in each)

3. Width x Depth x Speed = Discharge (how much water passes by a given area each second)
4. Curves in a river, form during the mature or old stage
5. Tributary
6. When a river slows down or when slope changes, large sediments are deposited first
7. Sediment that's all the same size

Groundwater

1. Limestone bedrock is dissolved forming a cave, when a cave collapses a sinkhole forms
2. Aquifers
3. Areas with limestone bedrock
4. Calcite
5. Subsidence, saltwater contamination, over pumping, chemicals, sewage, etc.

Plate Tectonics

1. Earth was once joined as a single landmass called Pangaea (Alfred Wegner), plates move because of convection currents in the mantle
2. Periods of time when the Earth's magnetic field was reversed
3. Convergent (crust is recycled, volcanoes form), Divergent (sea floor spreading, new ocean crust), Transform (Earthquakes)
4. Giant landmass when continents were all together
5. Similar fossils on opposite coastlines, similar rock formations on opposite coastlines, glaciers at the equator, continents look like they fit together
6. Divergent plate boundaries (ocean floor)
7. Inner core = solid iron & nickel; outer core = liquid iron & nickel
8. Convection currents (occur in a liquid, warm stuff rises, cool stuff sinks)

Volcanoes

1. Opening of a volcano where lava erupts
2. Magma rises to the surface and fills in cracks in rock (b/c it's less dense)
3. A volcano that occurs in the middle of a plate boundary, ex: Hawaii
4. Felsic
5. Composite
6. When a magma chamber empties and the volcano collapses
7. Both increase; increase in pressure makes it harder for magma to melt (needs higher temperature)

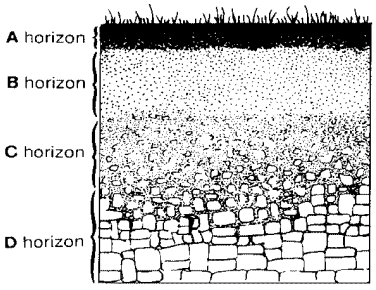
Earthquakes

1. Three
2. Focus
3. Epicenter
4. Richter scale (each increase is 10 times greater)
5. P-wave (primary wave)

6. They tell how far away a station is from the earthquake
7. Along plate boundaries

Additional Information

1. What do closely spaced contour lines represent? (steep areas)
2. What do closed loops indicate on a contour map? (hill)
3. What determines the properties of a mineral? (composition)
4. What do minerals in the sulfate group contain (sulfur)
5. What mineral reacts with acid? (calcite)
6. What does inorganic mean? (not living)
7. Why is coal not a mineral? (it came from living things)
8. What determines a rocks texture? (arrangement, size, and shape of a rocks grains or crystals)
9. What causes regional metamorphism? (tectonic activity like mountain building)
10. Where does chemical weathering most easily occur? (Warm & humid climates)
11. What type of rock weathers most easily? (sedimentary, specifically limestone)
12. Know the diagram below



13. How does a stream lengthen? (headward erosion)
14. What is base level? (the lowest level a river will down cut to)
15. Where do springs form? (where groundwater naturally meets the surface)
16. What type of volcano has quiet eruptions? (shield)