

Paleontology - Review for Exam I (Tuesday, Oct. 3rd)

I. The Rock cycle & Geologic Time

Terms - Geologic Time, igneous rocks, plutonic igneous rocks, volcanic igneous rocks, crystallization, phaneritic texture, porphyritic texture, sedimentary rocks, lithification, detrital texture, nondetrital texture, metamorphic rocks, metamorphism, foliated texture, nonfoliated texture, Relative Geologic Time, Original horizontality, Law of Superposition, Law of Cross-cutting Relationships, Geologic Events, fault, fold, tilting, igneous intrusion, unconformity, Principle of Inclusions, isotope, radioisotope, Parent isotope, Daughter isotope, half life, isotopic dating, generic decay curve, U-Pb dating, Carbon dating

- the definition of a mineral
- physical properties used to identify minerals
- the definition of the 3 great rock groups
- how we apply superposition and cross-cutting relationships to the study of relative geologic time
- how to use a 'generic' radioactive decay curve
- different techniques to determine absolute geologic time and some problems/errors involved

II. Pre-Hadean Time

terms - Big Bang, quarks, proton, neutron, electron, nucleus, atom, element, supernova, solar nebula, accretion, molecular cloud, proto-sun, accretionary disk, planet, terrestrial planets, gas giant planets, differentiation, small solar system bodies, dwarf planets, satellites, asteroid belt, Kuiper Belt, comets, meteors, meteorites

- the early chronology of the Big Bang - how all matter came into being
- the Solar Nebula Hypothesis for the formation of our solar system
- the composition of the planets
- what caused differentiation in the terrestrial planets

III. Hadean Eon

terms - Eon, Hadean Eon, outgassing, Late-Heavy Bombardment, Mars-sized Impactor Theory (Theia)

- the physical conditions of the Earth during the early Hadean
- the chronology of geologic events that occurred in the Hadean
- the theories of how our atmosphere and ocean formed
- the composition of our early atmosphere and oceans

IV. Archean Eon and the Origin of Life

terms - Archean Eon, Archean shields, komatiite, peridotite, granite, basalt, mantle convection, metasedimentary rocks, granitic gneisses, greenstones, pillow lavas, binomial nomenclature, prokaryotes, eukaryotes, inorganic synthesis, anaerobic organisms, aerobic organisms, heterotrophs, autotrophs, ATP, stromatolites, photosynthesis

- Geologic events that mark the boundary between the Hadean and Archean Eons
- the composition of Archean continental shields
- the 3 criteria for life
- the Linnaean classification scheme for life
- the Kingdoms of life
- the Miller experiment for inorganic synthesis
- the earliest evolution of life (the various stages or adaptations)

V. Sedimentary Environments

terms - clastic sediment, bioclastic sediment, chemical sediment, geologic structures, bedding, graded bedding, cross-bedding, terrestrial environments, transitional environments, marine environments

- how does size of clasts relate to energy of the environment?
- what can color tell you about the environment that the sediment formed in?
- what are the sub-environments in the terrestrial environment?
- what are the sub-environments in the transitional environment?
- what are the sub-environments in the marine environment?

VI. Fossils and Fossilization

terms - fossil, original hard parts, permineralization, petrification, replacement, carbonization, cast, mold, encasement, recrystallization

- under what conditions are fossils preserved?
- what are compositions of the original hardparts of organisms?
- what materials can be permineralized and how does it occur?
- how can plants and soft-bodied organisms be preserved?