Homework Assignment 4 – Getting a Grasp of Geologic Time

Objectives: 1) to familiarize you with the major geologic events in earth history that affected Minnesota; 2) to convey the enormity of geologic time on a scale that you can relate to, and 3) to get practice on basic math skills.

Instructions: Scale the following geologic events to the span of a week (to the nearest minute).
Ga (giga-annum) = billions of year; Ma (milli-annum)= millions of years. On a separate piece of paper show the method you used to calculate your answers (need not be neat; just scribble notes that show your work is fine). Turn in your assignment via email or in class by next Thursday (2/15/07). (10 points)

4.55 Ga Earth condenses from the solar nebula Mon 12:00 AM
3.65 Ga Oldest rocks in Minnesota - MN River Valley ________________
   Montevideo Gneiss
3.00 Ga Volcanic islands build out of ancient seas ________________
   to form the Ely greenstone in N MN
2.65 Ga Algoman Mts form by the collision of island arcs and protocontinents to form Kenoraland ________________
2.00 Ga First life-forms discovered in MN rocks ________________
   algal mats (stromatalites) in iron formation
1.855 Ga Penokean Mts form by collision of island arc ________________
   Kenoraland grows to form Laurentia
1.109 Ga Midcontinent Rift begins creating volcanic rocks of the North Shore ________________
1.086 Ga MCR-related volcanism ends, rifting is aborted ________________
520 Ma Epicontinental seas flood the interior of Laurentia depositing sand and limestone ________________
390 Ma Last of the great Paleozoic seas encroaches on southern MN depositing fossiliferous limestone ________________
250 Ma Dinosaurs appear and forage over the tropical jungles of Minnesota - leaving no trace ________________
80 Ma Great Interior Seaway laps up against western MN depositing organic-rich clay deposits ________________
1.8 Ma Continental glaciers advance out of Canada to cover most of Minnesota ________________
11,000 yrs Last of the glaciers recede into Canada ________________
0 yrs Today ________________

Sunday at the stroke of midnight