

Name: _____

Score (first try): _____
 Score (with corrections): _____

Scientific Notation

Glacial Geologist Lauren Miller Simkins spends time in Antarctic waters, studying the history of Earth's glaciers. The opportunity to think about the passage of time in "thousands and millions and billions of years" attracted her to geology, the study of Earth.

To describe time, all the way back to Earth's formation, and sediment, which includes particles much smaller than sand, a geologist must use very large and very small numbers. **Scientific notation** helps scientists use these kinds of numbers efficiently.

Look over these lists of sediment size and geologic time. **Pay close attention to their units of measure.** Then answer the questions below.

Sediment (measurements represent the diameter of each type of particle)
boulder \geq 25.6 cm
6.4 cm \leq cobble < 25.6 cm
.2 cm \leq gravel/pebble < 6.4 cm
62.5 μ m \leq sand < .2 cm
.004 mm \leq silt < 62.5 μ m
clay \leq .004 mm

Time (Earth's History)	<i>mya = million years ago bya = billion years ago</i>
Earth's age	4.6 billion years
formation of Australian zircon crystals	4.4 bya
oldest rocks found on Earth	4.28 billion years old
the Hadean eon	4540 mya - 4000 mya
the Archean eon	4000 mya - 2,500 mya
the Proterozoic eon	2500 mya - 541 mya
the Phanerozoic eon	541 mya - present

1. Complete and study the table below, to practice using scientific notation and to compare it with standard numbers. Name each type of sediment **or** eon in the third column.

Scientific Notation	Decimal Notation	Type of Sediment/Eon
3.2×10^{-2} mm		
	.053 mm	
2.786×10^{-4} mm		
	4,250,000,000 years ago	
5.4×10^8 years ago		
	4,280,000,000 years old*	
2.3×10^8 years**		
	.000005 m	
3.4×10^{-6} m		

* = what happened about then?

** = Dinosaurs appeared about then

