Date: Title:

(A) Lesson Objectives:

a. Understand the idea and format of numbers written in scientific notation
b. Practice convert numbers from "regular form" to scientific notation and vice versa
c. Work with problems where numbers in scientific notation are used

(B) Opening Exercise (Internet Scavenger Hunt)

a. Write down the US national debt in 2011: _____.
b. Write down the size of an HIV virus: _____.
c. Write down the distance from Earth to the nearest star (Proxima Centauri) in km:
d. Write down the radius of a meson (sub-atomic particle): : _____.

e. BONUS QUESTION: **FERMI QUESTION**: How many mesons would fit into my room?

(C) Scientific Notation

Purpose ➔

Example ➔

Three Components ➔

One other point about the exponent:

(a) ➔ if the exponent is **positive** ➔ the number is _____.
(b) ➔ if the exponent is **negative** ➔ the number is _____.

(D) Practice

a. Scientific Notation worksheet from http://misterguch.brinkster.net/PRA039.pdf
b. http://www.solonschools.org/accounts/clairestoltz/10212009115558_worksheets_Scientific_Notation.pdf
c. Quizzes from http://www.fordhamprep.org/gcurran/sho/sho/lessons/lesson25.htm

Date: Title:

(E) Practice in Context

a. The distance from Earth to the Sun is 9.296×10^7 miles. The distance from Mars to the sun is 1.413×10^8 miles. How many miles further from the Sun is Mars than Earth?

b. The Population density of a region is the number of people per square mile and is calculated by finding the ratio of the population to the land area. The Earth's population is 6.5×10^9 and has a land area of 5.8×10^7 square miles. Find the population density. Include units.

c. A human red blood cell is approximately 9×10^{-3}mm in diameter. Approximate, in mm, the width of 8.2×10^4 cells if they are positioned side by side in a line.

d. The area of the United States is approximately 65 times larger than the state of New York. If NY is 5.4475×10^4 square miles, approximate the number of square miles contained in the entire US?

e. The diameter of a U.S. quarter is 2.41×10^{-2} m and the diameter of Earth is 1.2753×10^7m. How many quarters would it take, placed side by side, to reach across the Earth's diameter?

(F) HW: from HH Textbook ➔ Sec 2D, p43, Q1,3,4,5,6 and from the Cirrito textbook: EX 4.3, p99, Q2,4,6,8,10

http://www.kutasoftware.com/FreeWorksheets/Alg1Worksheets/Writing%20Scientific%20Notation.pdf

(G) RESOURCES:

- Video help from OnlineMathLearning with scientific notation:
  - http://www.onlinemathlearning.com/scientific-notation.html
  - http://www.onlinemathlearning.com/scientific-notation-3.html
  - http://www.onlinemathlearning.com/scientific-notation-5.html
- Reading from PurpleMath ➔ http://www.purplemath.com/modules/exponent3.htm