Unit: Exponents and Scientific Notation
Student Handout 7

Name _____

Date _____Pd_____

ESTIMATING QUANTITIES

We can estimate very large and very small values using powers of ten. For A-C below, round the given value to help you rewrite the value as a single digit times a power of ten.

VALUE	ROUNDED	POWER OF TEN
A. 24,000		
B. 0.000879		
C. 6,825,000		

Estimate the following values by rounding and rewriting as a single digit times a power of ten.

1.	2.	3.
720,432	0.0000056	12,678,200

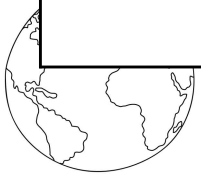
In 4-7, apply estimating with powers of ten to answer each question. Be sure to show all work.

4. In 2015, the world population was about 7,390,000,000. In the same year, the population of the country that Rhett lived in was about 6,926,000.

a. Give an estimate of the world population in 2015 using a power of 10.

b. Give an estimate of the population of Rhett's country in 2015 using a power of 10.

c. Approximately how many times greater was the population of the world in 2015 than Rhett's country?



5. Vincent's dad drives a car that weighs about 3,980 pounds. A toy car in Vincent's toy box weighs about 0.08125 pounds.	
a. Give an estimate of the weight of Vincent's dad's car using a power of 10.	b. Give an estimate of the weight of Vincent's toy car using a power of 10.
c. Approximately how many times heavier is the car that Vincent's dad drives than Vincent's toy car?	

6. The diameter of a grain of sand measures about 0.0046 inches, while the diameter of a dust particle measures about 0.00005 inches.	
a. Give an estimate of the diameter of a grain of sand using a power of ten.	b. Give an estimate of the diameter of a dust particle using a power of ten.
c. Approximately how many times larger is the diameter of a grain of sand than the diameter of a dust particle?	

7. A snail in Lauren's vegetable garden is traveling at a speed of 0.03 miles per hour. An airplane flying above Lauren's house is traveling at a speed of 575 miles per hour.	
a. Give an estimate of the snail's speed using a power of 10.	b. Give an estimate of the airplane's speed using a power of 10.
c. Approximately how many times faster is the airplane traveling than the snail?