

Guided Notes: Significant Figures and Dimensional Analysis**Measurements**

Base Units

Quantity	Base Unit
	Second (s)
Length	
Mass	
	Kelvin (K)
Amount of Substance	

Metric Units

Prefix	Quantity
kilo (k)	
hecto (h)	
deka (D)	
BASE	
deci (d)	
centi (c)	
milli (m)	

Significant Figures Rules:**Digits that are ALWAYS significant:**

- _____ digits
- 2.65 = _____ sig figs
- _____
- 3004 = _____ sig figs
- all _____ to the _____ of a DECIMAL
- 6.7000 = _____ sig figs

Adding/Subtracting Rule:

- only as accurate as your _____
- $2.54 + 2.0 =$ _____
- Calculator says: _____
- Correct number of sig figs: _____

Multiplying/Dividing Rule:

- only have as many sig figs as your value with the least amount of sig figs
- $6.8 \times 1 =$ _____
- Calculator says: _____
- Correct number of sig figs: _____

Practice:

Determine the number of sig figs in the measurements below:

1. 1.006
2. 0.00354
3. 600
4. 600.
5. 5,102.0

Calculate the following and put in the correct number of sig figs.

1. $10.2 + 0.08 + 10$

3. 12×3

2. $0.45 - 0.10 + 0.2$

4. $120. \div 2.00$

Dimensional Analysis:

Scientific Notation:

- Scientific notation is expressed as a number between _____, raised to a power of _____.
- numbers _____ than 1 have a _____ exponent
example: 16,200,000
scientific notation:
- numbers _____ than 1 have a _____ exponent
example: 0.000000568
scientific notation:

Practice:

Put the following numbers into scientific notation:

1. 1,257 _____

3. 0.000253 _____

2. 56,000 _____

4. 0.000000000000458 _____

5. Select the largest of the following numbers.

a. 3.21×10^{-4}

c. 9.10×10^{-8}

b. 5.76×10^4

d. 7.24×10^8

6. Write the following number in proper scientific notation: 0.0000378

Dimensional Analysis:

- using _____ factors to go from one _____ to another
- CONVERSION FACTOR: _____
ex:

Steps:

1. Start with your known value and unit.
2. Determine the desired unit to convert to.
3. To cancel units, you must put them on the opposite side of the fraction.
4. Continue to cancel units until you have reached the desired unit.

Practice:

1. Convert 3 days to seconds

2. 22.4 kg/L to kg/mL

3. Traveling at 65 miles/hour, how many minutes will it take to drive 350 miles to Rapid City?