Subject: AP Chemistry
Grade: 11
Lesson: 3
Book reference: Unit

Significant Figures

Objective

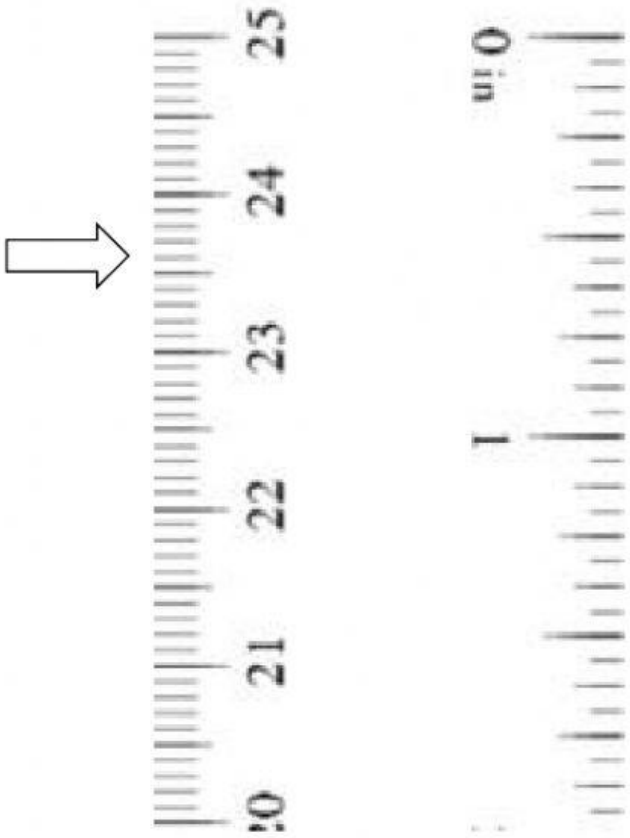
By the end of this activity, you should be able to determine how many significant figures are in a given number.

Remember numbers taken in the lab are measurements.
All digits from a measurement are significant.
Always measure to the point of uncertainty.

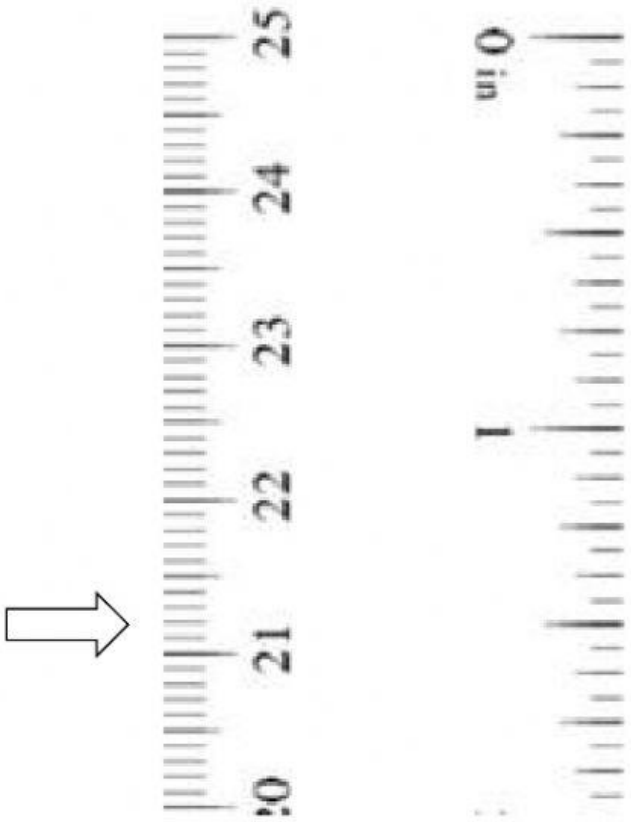
1. What is the difference between these values?

1.37 ***1.375925*** ***1.37592563228***

2. Using the images of the ruler below – determine the measurement in each example. Explain why you chose your answer for each one.



LIVEWORKSHEETS



3. A balance was used to find the mass of an object. Review the recorded masses below, which one measures an object to a mass one tenth a gram? Which one measures an object to a mass one thousandth a gram? Explain your reasoning.



a. 0.1 g ***b. 0.10 g*** ***c. 0.100 g***

4. You go to a candy (sweets) to buy some candy. The candy is priced per 100g. For 100g of candy the price is 5 riyal. You decide that you want to buy 50g of candy. Which balance would you use to get the most candy for your money? Explain why?

LIVEWORKSHEETS

5. The Arrow rules

Use the Arrow Rule to determine the significance of numbers *Ask yourself: Is there a decimal point?* The arrow crosses out all of the INSIGNIFICANT ZEROS until it hits NON-ZERO digit.				
Arrow rule shown in example	A	B	C	D
	~~0.000~~3489	~~→~~122.48	1094~~0000~~	1~~000~~
Value shown without arrow	0.0003489	122.48	10940000	1000
Number of significant figures	4	5	4	1

- How many zeros are crossed out in A, B, C, D?

- What numbers are not crossed out in A, B, C, D?

- Why are the arrows for A and B pointing to the right?

- Why are the arrows for C and D pointing to the left?

- Can you draw a conclusion about the position of the decimal and how the arrow is drawn?

LIVEWORKSHEETS

6. Determine the number of significant figures in the following numbers.

Given Value	Number of Significant Digits
a. 3427	
b. 0.00456	
c. 0.505	
d. 546000	
e. 1362205.2	
f. 0.0000000020000	
g. 30.0×10^{2}	
h. 1000×10^{-3}	

LIVEWORKSHEETS