Grade 11 NTI Day #8 Chemistry

Please do the following:

(1) Watch this youtube video: https://www.youtube.com/watch?v=-OocWGxgyZ4&list=PL5wpmHJhOEi-i3V7JYsWcWp0hLqybi5Kt&index=4

(2) Review the slidedeck/presentation (see below). It will match the video presentation above.
(3) Complete the question sheet below the slidedeck at the end of this document.

If you have any questions, please email me: tyler.hampton@pineville.kyschools.us . This assignment is on Google Classroom. **Please turn it in through Google Classroom.** While you are there, make sure to sign the sign-in sheet. The assignment is also on the school homepage https://www.pineville.kyschools.us/. Go to the tab that says, “NTI”. Then go to the appropriate day. **However, please turn in the assignment through Google Classroom, even if you access it through the school website.**

Day 5-Notes

Unit: Introduction to Chemistry

Significant Figure Rules

After today, you should be able to:

- Identify the amount of significant figures in a number
- Demonstrate how to read significant figures off of measuring instruments

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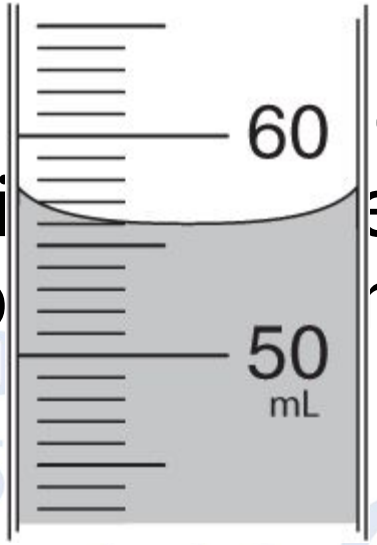
- There is *uncertainty* in all measurements.

- The "certain" digits include *all numbers read directly off of the measuring device PLUS one extra estimated digit.*

- Ex: 

device is a graduated cyli e units are mL. The pro ng should be:
56.0mL (estimated digit)

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- *The amount of definite digits depends on the measuring device.*

- An exact number has no uncertainty, and therefore *has an infinite number of significant figures*
  - Example: *25 people, 25.000000000000000000….*

- Defined quantities are considered to be exact.
  Example: *12 in=1ft, 100cm=1m*

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Rules for Sig Figs!!

1. *All **non-zero digits** are significant*

Example: 2.17 - 3 s.f.

3894.6 – 5 s.f.

2. ***Leading*** *zeros are* ***never*** *significant (zeros to the left)*

Example: 0.003 - 1 s.f.

0.04 – 1 s.f.

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3. ***Captive*** *zeros are* ***always*** *significant (zeros in the middle)*

Example: 205 – 3 s.f.

20005 – 5 s.f.

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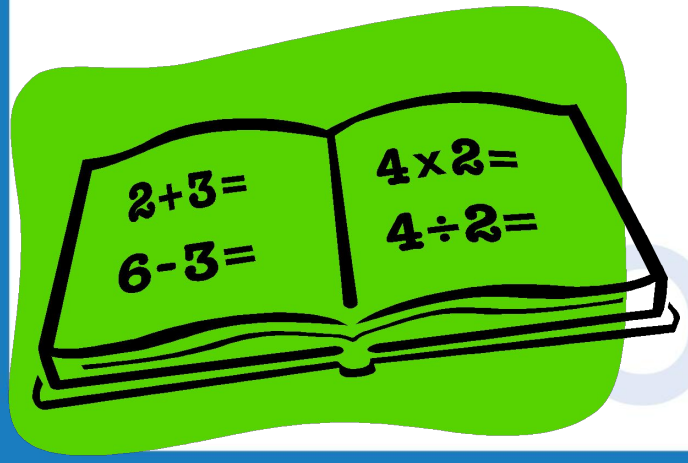
4. ***Trailing*** *zeros are* ***sometimes*** *significant (zeros at the end)*

a) *They are significant if the number contains a decimal point*

Example: 155.0 – 4 s.f.

0.450 – 3 s.f.



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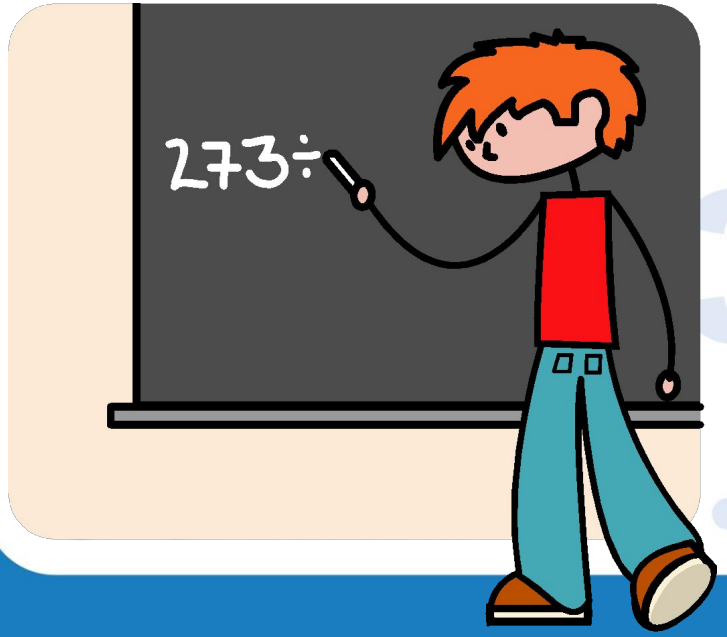
4. **Trailing** zeros (cont.)

b) *They are not sig. if the number <u>does not</u> contain a decimal point*

Example: 1550 – 3 s.f.

45000 – 2 s.f.



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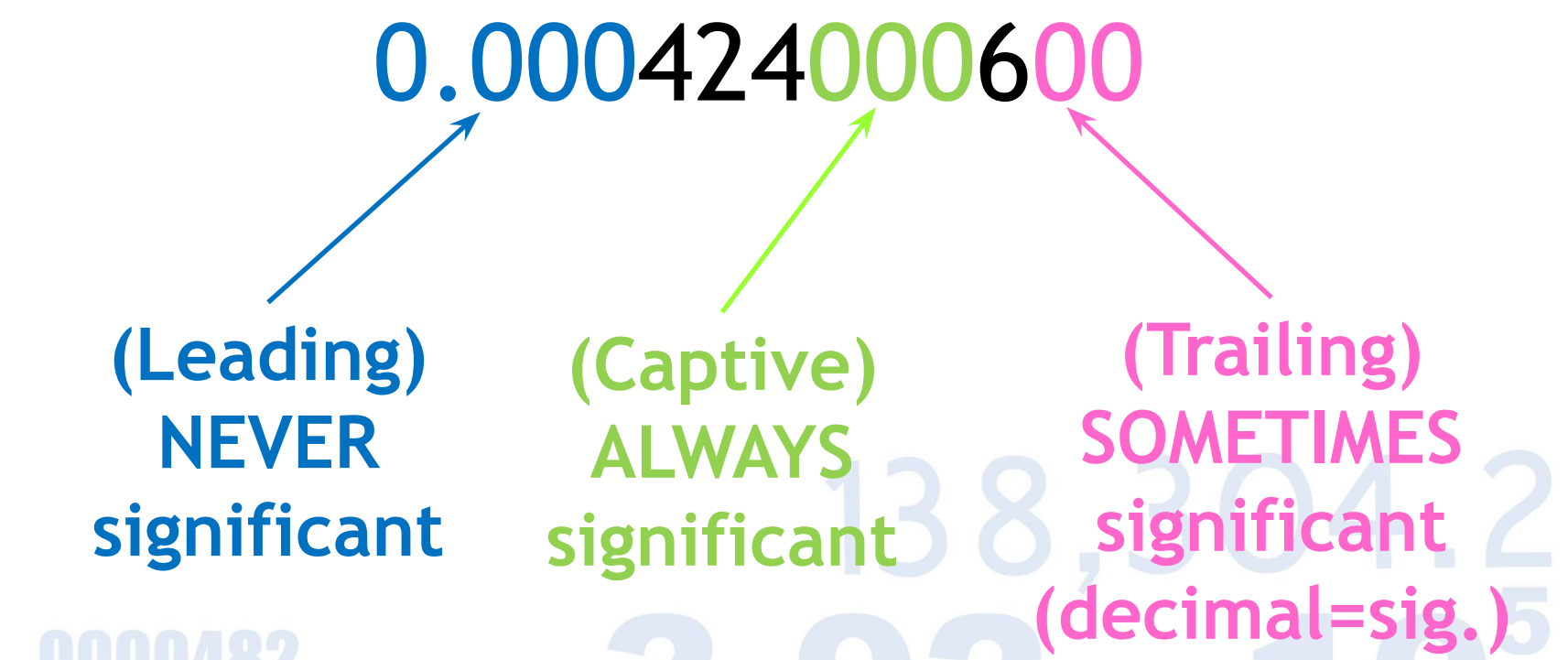
Summary


0.00042400006 00
(Leading) NEVER significant
(Captive) ALWAYS significant
(Trailing) SOMETIMES significant (decimal=sig.)

You try it!

How many sig figs are in the following?

1. 4.59 **3**
2. 3.00 **3**
3. 200,202 **6**
4. 0.0050 **2**
5. 43,000 **2**
6. 1.09×10^4 **3**

Day #8 Questions

Multiple-Choice Questions

1. How many significant figures are in the number 0.00450?
   a) 2
   b) 3
   c) 4
   d) 5

2. Which of the following statements is true about trailing zeros?
   a) Trailing zeros are always significant.
   b) Trailing zeros are only significant if the number contains a decimal point.
   c) Trailing zeros are significant only when they appear at the start of the number.
   d) Trailing zeros are never significant.

3. What is the total number of significant figures in the number 3.0050?
   a) 3
   b) 4
   c) 5
   d) 6

Short Answer Question

4. Explain the difference between captive zeros and leading zeros. Provide one example of each.