Statistics in Science Notesheet *by C. Kohn, Agricultural Sciences – Waterford WI*

Name: Hour Date:

Date Assignment is due: Why late? Score: + ✓ -
 Day of Week Date If your project was late, describe why

**Intro Activity:**  2 graphs are shown below. In which example do you think the researchers would be more likely to get the same outcome from their experiment? In which example do you think the researchers would be *less* likely to get the same outcome for their experiment. Explain your reasoning next to each graph.

I think that a researcher would be

More Less

likely to get the same outcome for this experiment compared to the other graph because:

****

I think that a researcher would be

More Less

likely to get the same outcome for this experiment compared to the other graph because:

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**Directions**: use the accompanying PowerPoint (*available online*) to complete the questions below. These assignments are graded on a + ✓- scale.

1. A major concern in science is proving that what we have would

\_ if we .
2. What is the Scientist’s Question?

\_ .
3. In science, we can use to determine whether or

not we can be .
4. In other words, the use of can tell us whether our

 are .
5. The more variable our data is, the reliable it is.

The variable our data is, the more reliable it is.
6. What is the mean of the data?
7. How do we calculate the mean of the data? Write the formula here:
8. What does it mean that the mean of the data can change?

\_ .
9. List and describe the two factors that affect the reliability of our data:

\_ .

\_ .
10. What is Standard Deviation?

\_ .
11. What does high variance mean?
12. What does low variance mean?
13. What is the equation for standard deviation?
14. You have a group of 5 students.
	1. Student A is 72 inches tall
	2. Student B is 60 inches tall
	3. Student C is 66 inches tall

Calculate the mean height and standard deviation for this group. Show your work below.

1. What is Standard Error?

\_ .
2. What two things does Standard Error utilize to determine reliability?

\_ .
3. What is the formula for standard error?
4. Calculate standard error for our earlier problem involving average height; show your work:
5. What is the margin of error?

\_ .
6. What is the margin of error equal to?
7. What are error bars?

\_ .
8. If two sets of error bars overlap, what does this mean?

\_ .

We have to treat them U
9. If two sets of error bars do not overlap, what does this mean?

\_ .
10. In the space below, draw a bar graph between two samples that are statistically the same.
11. In the space below, draw a bar graph between two samples that are statistically different.

Unit Wrap-up C. Kohn, Agricultural Sciences - Waterford WI

1. Write the 3 topics that you most need to review before the quiz:

1\_

2\_

3\_
2. Create 3 **high-level questions** related to this material
(*These questions could be something you still don’t know or questions that reflect understanding that you have now that you did not have before.*)

1\_

2\_

3\_
3. List 6 **vocabulary words** that you did not know before or have not used very often prior to this unit:

1\_ 2 3

4 5 6

1. In the spaces below, fully write three strategies that will help you to remember specific vocabulary words or topics from this unit. **NOTE**: A strategy is *not* an activity such as reviewing your notes, studying hard, etc. A strategy is a mnemonic, rhyme, analogy, or other brain-based device that is specific to one item from the unit.

1.\_

2.\_

3.\_

1. Circle the most appropriate response. You will only be graded on whether or not you completed this section, so be entirely honest with yourself when completing this section.

Circle one: *I used my notes outside of class to prepare for the quiz.* Definitely – Yes – Sort of - No

Circle one: *I took extra notes in the margins for very difficult concepts.* Definitely – Yes – Sort of - No

Circle one: *I created a personal strategy for at least three difficult items.* Definitely – Yes – Sort of - No

Circle one: *I was very involved and actively studying during the quiz review.* Definitely – Yes – Sort of - No

Circle one: *I think I will be satisfied with the quiz grade I received this week.* Definitely – Yes – Sort of - No