

Mrs. Cronin's Study Guide – Unit 1 (Review and Foundational Skills)

- **Please note: This study guide is provided as a courtesy. You are responsible for the content of our unit of study.**
- **Study guide is due with your packet on Thursday 09/26/2019 when you walk in the class!**
- **It is the last item in your unit packet (you are getting 5 days and almost 2 class periods to work on this 😊)**

Lab Safety:

- 1) How should all chemicals in the lab be treated?
- 2) What does a Material Safety Data Sheet inform the reader of?
- 3) Why should a scientist check the names of chemicals at least twice?
- 4) What dress code are you expected to meet on laboratory days?
- 5) What does Personal Protective Equipment (PPE) mean? Give 3 examples of PPE you must wear while in the lab?
- 6) What should a student do if he or she does not understand a laboratory procedure?
- 7) What would Mrs. Cronin do if a student does not follow procedures and causes danger to him/herself and others while in the lab?
- 8) Suppose there is a fire drill, during our lab time. What are we supposed to do?
- 9) What do you do if you or a classmate is injured during a lab?
- 10) What is the minimum time requirement for using the safety shower or eye wash following an accident?

Graphing/Data Analysis:

- 1) Identify the X and Y axis on a graph.
- 2) What is a dependent variable and where is it graphed? (remember DRY MIX)
- 3) What is an independent variable and where is it graphed? (remember DRY MIX)
- 4) What is the mathematical formula for the slope?
- 5) What is the slope of a line that crosses the following points on a graph: point 1 (35, 17) point 2 (50,47)? (**Honors:** You may have negative numbers)
- 6) What is the point of calculating a slope? What does it tell us?
- 7) Sketch graphs with a positive, negative, zero, and undefined slopes.
- 8) How should a graph properly be titled? (hint: independent vs dependent variable)
- 9) What is a line graph used for?
- 10) What is a pie chart (circle graph) used for?
- 11) What is a bar graph best suited for?
- 12) What is a scatter plot best suited for?
- 13) Of the four types of graphs we learned about, which two must have keys?
- 14) Know how to identify a line graph, bar graph, scatter plot, and pie chart, from photos.
- 15) If you provide a pie chart, what information must be on the pie chart?
- 16) In a class, there are 20 students with brown eyes, 15 students with blue eyes, and 5 students with green eyes. Present this information in a table and also a bar graph.
- 17) **Honors:** Please give an example of a graph with direct proportion (don't forget labels!).
- 18) **Honors:** Please give an example of a graph with inverse proportion (don't forget labels!).
- 19) What is the best way to organize your data? (starts with a "T")
- 20) What must be included any time data are presented (starts with a "U")?
- 21) When we state claims or write conclusions, what must we support or refute our claims and conclusions with? (starts with a "d")

Scientific inquiry/experiments:

- 22) Define observation. Please provide an example.
- 23) What is the difference between an observation and an inference?
- 24) What is the goal of the scientific method?
- 25) What is a hypothesis?
- 26) What is the difference between a question and a hypothesis?
- 27) Give me an example of a hypothesis in the format we discussed in lecture.
- 28) What is a parameter?
- 29) What is a variable?
- 30) What is a controlled experiment?
- 31) Why do scientists perform controlled experiments?
- 32) Discuss 3 flaws with the bouncy ball lab experiment (we talked about them in detail in class).
- 33) Why do scientists communicate results?
- 34) What is the difference between scientific law and theory?

The Metric System:

- 35) What are the 7 base units in the metric system? (look at Doodle notes)
- 36) What are the units for length, weight, and volume in the metric system?
- 37) What does absolute zero mean (for temperature)?
- 38) Is density a base or derived unit? How do you know?
- 39) What is the formula for calculating density?
- 40) Calculate the density of a substance with a mass of 50 grams and a volume of 25 cm³
- 41) What is one practical application for knowing density of a substance?
- 42) An object will float in water if it is _____ than water.
- 43) Please name the units for volume ranging from smallest to largest in the SI system.
- 44) Conversion between units (similar to your quiz):
 - a. How many centimeters are there in a decameter?
 - b. Convert meters to kilometers
 - c. How many centimeters are there in 890 meters?
 - d. **Honors:** Calculate the number of centimeters in 3 feet (given that 1 inch is about 2.5 cm)
- 45) **Honors:** Be able to identify SI prefixes, symbols, and their meaning (book page 17)
- 46) **Honors:** If a generator produces 10 megawatts of power, how many watts is this number equivalent to?
- 47) **Honors:** Be prepared to do multi-step conversions, similar to your quiz. Take your quiz, change the numbers, and try problems you missed.

Other:

- 48) What is the difference between mass and weight?
- 49) Where would Mrs. Cronin weigh less: the Earth or the Moon? Why?
- 50) **Honors:** Which one is more precise, an analog clock or a digital clock? Explain.

Scientific Notation (**Honors only**): If I include multiplication and division, it will be extra credit, as we need to practice more.

- 51) What is the purpose of using scientific notation?
- 52) Please put the following 3 numbers in scientific notation: 2,000 0.000015 1,000,000,000

Did I forget anything?