Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_\_\_\_\_

**Unit 1 Study Guide**

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| **Topics:** Metric, Scientific Method, Characteristics of Life, Classification & Taxonomy |

***Directions:*** Use the following as a **guide** when you are studying. Be sure to references class notes, the textbook, distributed worksheets and handouts, labs, notes from lecture, etc. as you study.

**Relevant Vocabulary:**

You should be familiar with the following vocabulary terms taken from the textbook, from worksheets, and from lecture for this unit. All or some of these terms may end up on your exam. There may be some terms covered in class or in the textbook that are not listed below that may also show up on your exam. Add vocabulary to this list as needed as we progress through the unit.

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| --- | --- | --- | --- |
| Science | Observing | Quantitative observation | Qualitative observation |
| Inferring | Predicting | Classifying | Making models |
| Life science | Scientific inquiry | Hypothesis | Independent variable |
| Dependent variable | Control group | Experimental group | Controlled experiment |
| Data | Operational definition | Communicating | Organism |
| Cell | Unicellular | Multicellular | Stimulus |
| Response | Development | Growth | Spontaneous Generation |
| Redi | Pasteur | Photoautotroph | Chemoautotroph |
| Photoheterotroph | Chemoheterotroph | Homeostasis  | Imperial System |
| Metric System |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Objectives:**

You should be able to answer the following questions covered in the textbook, on worksheets, and in lecture for this unit. ***Do not forget to review previous quizzes, handouts, classwork, labs, etc. for practice problems when studying.***

1. How do we stay safe in the lab?
2. What is PPE and when should we wear it?
3. What is a unit? Compare and contrast the imperial and metric systems.
4. Understand how to use the metric ladder to find conversion factors.



1. What is a conversion factor? Explain why multiplying by a conversion factor does not change the value of a measurement.
2. Know how to convert from one measurement to another using conversion factors, sometimes multiple, and the KFS method.
3. How do we determine “appropriate” units of measurement?
4. Abby is told that the volume of the Life Science classroom is 7, 396, 700mL and wants to convert this to a more appropriate measurement, m3. Help Abby convert this measurement using KFS!
5. What skills do scientists use to learn about the natural world?
6. What are the steps of the scientific method? Why and when do we use it?
7. Compare and contrast qualitative and quantitative observations.
8. Compare and contrast observations and inferences.
9. Know how to write a testable hypothesis. Can you prove a hypothesis?
10. What is a controlled experiment? Be able to identify the independent and dependent variables, control and experimental groups, and other parts of the scientific method when given a sample experiment.
11. Understand what characteristics are common to all living things and be able to apply them
12. What do all living things need? Why?
13. Compare and contrast autotrophs and heterotrophs. Where do they get their energy? Where do they get their carbon?
14. How was spontaneous generation disproven? Compare and contrast Redi and Pasteur’s experiments and be able to identify the variables in each.