Chapter 1: Science of Life

Objectives

1. Identify most safe practices in laboratory setting.
2. Recite the four characteristics of living and define homeostasis & metabolism.
3. Identify and write the specific details of the scientific method steps taken by the scientists in articles about beri-beri disease and living from non-living.
4. Read "Dogged Investigation" to identify independent, dependent, and confounding variables and evaluate Pierre's three dogged investigations.
5. Perform an experiment to answer a question using the scientific method.
Question : Are solutions A and B are the same or different? (Methylene Blue Solution Lab).
6. Read a story on an ethical issue (Sharon's Story) then write duty, rights, and goal in all persons involve then write individual stance with a supporting statement.
7. Research definition, pros, and cons of an ethical issue; write personal stance; report back to group mates; and make a final stance with supporting statement.
8. Read microscope handout and write the parts & functions of a microscope.
9. Draw given samples in microscope lab to show competence in microscope usage.

Notes on Chapter 1

I. What is Biology?
Study of Life or study of living organism

II. Why study Biology?
Future of our planet's health (new disease, virus)
New Agricultural Technique, genetics
10minutes Discover Channel clip on platypus
Animal Testing Video (Evolution –animal research)

III. Six Step Scientific Method (handout)

- Identify the Problem
- Research the problem
- Form a hypothesis
- Test the hypothesis – Experiment
- Accept or reject the hypothesis – Conclusion
- Report the result – Publication

IV. Scientific Method Vocabulary
Independent Variable: the one factor that you change
Dependent Variable: the factor that changes as a result of the independent variable
Confounding Variable: can confuse your results, but you can control it. Your goal is to have no confounding variables.
Control Group: a standard that you can compare with the results of your test groups.
Experimental Group: the test group
Sample Size: the number of individuals in a test group.

II. Scientific Method Lab
Gak Experiment
Methylene Blue Lab

III. Basic Skills
Prefix (Meter)
King Henry Died Monday Drinking Chocolate Milk
Mass/ Volume/ Length
SI units

IV. Ethics in Biology (handout)
Growth Hormone Discussion (Sharon)
Ethics: a study of the standards of what is right and wrong.

I. Tools in Biology
Microscope Handout
Microscope Lab