Biology – The Scientific Method, Lab Write-up guidelines

Title of Lab (First line of Page)
Name (Second Line)
Date (Third Line)

Purpose: Why are we doing this lab?

Safety: What safety precautions should we take? Any chemical hazards, etc.

Observation: This is an observation that we have made that causes us to want to know more. Prior research should be examined to gain knowledge. From these initial observations you have an "understanding" of how things are. For example, "That is really neat how wolves stay in a pack."

Ask Questions: Based on what you observe, what questions do you have about how, why, etc? For Example "I wonder which wolf is the leader?"

Hypothesis: - A hypothesis is a **testable** prediction that answers one of your questions. This needs to be a complete sentence 💬 should correlate with the purpose of the lab. For example "I think the black wolf is the leader."

Design Experiment (Procedure): You are designing an experiment that will allow you to test your hypothesis. Write the steps in order and make sure to number them. For example, we could observe behaviors of other wolves when they interact with the black wolf and each other.

Data Collection (Testing Hypothesis): - This is where you write the data that you collect during the experiment. What did you observe? Always include the step in the procedure that you collected the data. For example, record the behavior of each wolf.

Analysis of Data: - What does the data you collected mean?   For example, "The black wolf always stood over the other wolves when they approached. This means that he is a higher rank than each of the other wolves."

Answer questions / Conclusion: - Was your hypothesis true or false? Look back and answer each question that you asked at the beginning of the lab. You now have a new "understanding" of how things are. Where do you go from here? Ask new questions based on your results. For example "My hypothesis was right, the black wolf is the leader. I wonder if there are other ranks in the pack?"

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Observation

Revise mental model
New "understanding"

Create mental model
"understanding"

Answer Questions
/ Conclusion

Ask Questions

Analyze data

Form a hypothesis /
Design Experiment

Test Hypothesis /
Collect Data