AP Bio Hardy-Weinberg/mathematical modeling LAB

Report Instructions

1. A full lab report is not necessary in your notebook, rather I would like to see the finished spreadsheet and some notes about how you “built” your model.
   1. Notes would include ideas, math equations, assumptions, etc.
   2. You should explain what you are testing by naming an Independent Variable and Dependent Variable.
   3. I’ll make the hypothesis extra credit. If you have chosen variables correctly you should be able to write a hypothesis (either null/alternative or if/then) that you can test with the model.
   4. You can also include how you might change the parameters of your model if you were going to redesign it.
   5. TURN IN the spreadsheet electronically with a flash drive or email to [john.giuffre@fsd145.org](mailto:john.giuffre@fsd145.org) or print it out. I would prefer electronically.
2. If you prefer following the full lab report format that we have been doing because you want to follow that structure (Background, question, hypothesis and variables, procedure, results, analysis, and conclusion ) then go ahead. That should still cover all of the information in #1.
3. As you build your model and explain your rationale, you may want to follow some or all of the steps on p.S28.
4. As you ask your question and decide on how to manipulate the variables, you may want to consider and try to answer some or all of the 3 questions on p.S37.
5. Answer the 2 questions concerning the random selection of alleles on p.S38 (hint: if there is no randomness you have a Punnet square with set frequency values).
6. The last part: *CREATING A FORMULA THAT PREDICTS THE GENOTYPES OF THE NEXT GENERATION*, is the hardest part. If you can’t come up with a good formula that is ok, I won’t count that. However, if you are truly mastering this material you should be able to try writing an equation that can come close at least part of the time. To do this you will want write a formula that takes the *p* and *q* values and calculates so that the *p2, 2pq, and q2* match or come close to the AA, AB, and BB values that the models kicks out for the next generation.
7. I will be checking the answers to the last 3 questions, on p.S39, so definitely answer those. These are written like free-response questions.