GRADING CRITERIA FOR GENETICS LABORATORY USING TOBACCO

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Every job is a self portrait of the person who did it. Let your signature be excellence.
Lee Martin

- Laboratory reports are individual writing assignments, not group projects, so do all your own calculations, graphing and writing.
- Laboratory reports must be typed not handwritten
- Each section should be written up as a clear, concise essay, not a list of answers to the points listed under each section. The listed points are merely to show you what should be included in your report.
- The hypotheses and predictions are done before you do the experiment, so don't see what you got for results and then write your hypotheses to fit.
- For the Results section do not turn in handwritten data on pages from the handout. Retype these tables for your results.
- Proofread your report for any errors before handing it in.

TITLE - 5 points total
Laboratory reports should have a separate title page
- On which species was the work done? - 1 point
- What specific trait did the two genes you studied affect? - 1 point
- What were you trying to determine in this lab? - 2 points
- Wording of title clear and concise - 1 point

ABSTRACT - 6 points total
- What were you trying to determine from the two crosses in this experiment? - 2 points
- How did you analyze your results? - 1 point
- What conclusions did your results lead you to make? - 3 points

INTRODUCTION - 14 points total
- Explain the concept of simple dominance. - 3 points
- In a case of simple dominance what would one expect to see in the F₁ and F₂ generations from a cross of two pure-breeding parents, one parent homozygous for the dominant allele and the other parent homozygous for the recessive allele? - 1 point
- Explain the concept of incomplete dominance - 3 points
In the case of incomplete dominance what would one expect to see in the F_1 and F_2 generations from a cross of two pure-breeding parents, one parent homozygous for one allele and the other parent homozygous for the other allele? - 1 point

Statement of null hypothesis and alternate hypothesis for Cross 1 - 2 points

Prediction based on hypothesis. Hint: If the alleles in Cross 1 demonstrate simple dominance what will be the expected ratio of green to albino in F_2? - 1 point

Statement of null hypothesis and alternate hypothesis for Cross 2 - 2 points

Prediction based on hypothesis. Hint: If the alleles in Cross 2 demonstrate incomplete dominance what will be the expected ratio of green to green-yellow to yellow in F_2? - 1 point

**MATERIALS AND METHODS** - 2 points total
- Source of protocol - 1 point
- Any changes to the protocol - 1 point

**RESULTS** - 30 points total
- Punnett square to predict the outcome (F_2 generation) of the cross of two members of the F_1 generation resulting from the original Gene 1 parental cross - 2 points
- Punnett square to predict the outcome (F_2 generation) of the cross of two members of the F_1 generation resulting from the original Gene 2 parental cross - 2 points
- Table for Cross 1 lab table data - 6 points
- Table for Cross 2 lab table data - 6 points
- Table for Cross 1 class data - 6 points
- Table for Cross 2 class data - 6 points
- Brief written description of what your figures and tables showed. - 2 points

**DISCUSSION** - 8 points total
- What did you decide about the type of inheritance exhibited by the first gene? Did you accept or reject your null hypothesis for Cross 1? - 2 points
- Why or why not? - 2 points
- What did you decide about the type of inheritance exhibited by the second gene? Did you accept or reject your null hypothesis for Cross 2? - 2 points
- Why or why not? - 2 points

**CITATIONS** - 2 points total
- Use the formats from Appendix D of the lab manual.

**WRITING** - 3 points total
- Your sentences make sense and you were concise. - 1 points
- You proofread your lab report and have no more than **five** spelling/grammar/punctuation/typographical errors - 2 points