MCB422 Non-Mendelian Problems

For this task, you are to determine and *justify* which features apply to each of the three traits 'in play' in your collection after you log in and select 'Mystery' task. The options are: Mendelian, mitochondrial, homozygous dominant lethality, synthetic lethality, X-linkage, segregation distortion. They may all be Mendelian, or there may be two of those phenomena in play (any locus will exhibit only one non-Mendelian behavior).

      Give some serious thought to what an EFFICIENT approach might be—what is the best way to look for 'signals' that one of these phenomena is occurring. Review you past work for inspiration. If you do 6 tests on each of 3 genes, you haven't thought this through, and both of us will suffer for it. Done correctly, at least half of the work occurs *before touching a strain.* A good plan prevents wasted motion. **Proof and edit ruthlessly before submitting!**

Requirement	Description	Expectation	Loss of points if
Outline of general strategic approach **30 points total**	Logic diagram indicating starting material (with history and method of selection if needful), general techniques (i.e. if you will determine dominance, tell us how ONCE and apply multiply)	Flow of logic clear. Goal of each segment and each step clear, logic. Presentation neat and orderly. Verbiage restricted to necessary minimum	Imprecise, missing decisive insights, unclear, wordy, inaccurate, unrecognized assumptions
Endpoints: how each 'terminus' on your logic diagram represents of conclusion about inheritance model (Mendel vs…) 20 points	These can be placed in-diagram, or in accompanying text. They should generally be of the form "Because I excluded maternal effect in *branch One*, the finding of no green offspring from parents known to be g1 (red male) and g2 (green female) forces a conclusion of X because Y	Crisp logic, inevitable conclusions. Short, well-argued, direct	Lengthy, sloppy in thinking or writing, indirect, containing logical leaps
'Diagnosis' of each of the three genes in play. For each, 5 points for data, 5 points for logic/conclusion **Total: 30 points**	Clear, concise, logical statement of how the results lead to the diagnosis Critical **strains** should be saved and referenced ("#13 and #17 were saved because ____ and crossed, yielding ____)	Ideally this should be a clean, spare *visual* presentation. If called upon, you should be able to explain your ideas and approach	Messy, incoherent, poorly thought out, lacking refinement, could be enhanced by second draft
Chi square or statement of non-necessity for *each* conclusion	Correctly assessed and presented statistical analysis		Incorrect assignments of values, misinterpretation of result, inappropriately set up