MCB422 Non-Mendelian Problems

You and your partner will divide the two tasks, one determining "Is it Penetrance or Segregation Distortion?" and the other "Is it Maternal Effect or Mitochondrial?"

You should determine a fool-proof strategy that, starting from a position of ignorance, allows you to develop needed tools *regardless of scenario.* A good plan prevents wasted motion.

Proof and edit ruthlessly before submitting!

Requirement	Description	Expectation	Loss of points if
Outline of general strategic approach **40 points total, including:** {10 point 'decision nexus'} {10 points <u>confirmation</u>}	Logic diagram indicating starting material (with history and method of selection) Decision nexus is your attempt to focus down to a key experiment; if need be, CAN be Must include 'confirmation'—a follow-up test/cross/check that is as independent as possible.	Flow of logic clear. Goal of each segment and each step clear, logic. Presentation neat and orderly. Ideally, the CONFIRMATORY test should be a *second* approach/angle. Worst case: repeat with independent strains.	Imprecise, missing decisive insights, unclear, wordy, inaccurate, unrecognized assumptions
How I will know: Brief statement clearly describing the POSITIVE basis for concluding EACH pathway 10 + 10 = **20 points**	These are brief statements of the form "If the suspect trait is _____, when I _____ the offspring will be _____". Essentially, a concise, clear, declarative remark about each outcome	Crisp logic, inevitable conclusions. Short, well-argued, direct	Lengthy, sloppy in thinking or writing, indirect, containing logical leaps
'Diagnosis' **Total: 30 points**	Clear, concise, logical statement of how the results lead to the diagnosis Critical **strains** must 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 Includes execution of 'Confirmation'	Messy, incoherent, poorly thought out, lacking refinement, could be enhanced by second draft
Chi square or statement of non-necessity for *actual* conclusion **10 points**	Correctly assessed and presented statistical analysis		Incorrect assignments of values, misinterpretation of result, inappropriately set up