FrogPond worksheet

Please answer these questions as you work your way through the FrogPond tutorial.

1. Which scenario are you trying first? (circle one) ONE   TWO   THREE   FOUR

2. What is the frequency of deformity in: Top Pond? ___   Bottom Pond? ___

3. Do you think the frequency of deformity is different between the two ponds? On what evidence?

4. For a scenario in which there is a difference in the rate of deformity between the two ponds, describe (and if possible diagram) an experiment that will tell you whether the deformities are caused by the parasites, by the genes the frogs inherit from their parents, or by a combination of the two. What will you do with the frogs? What data will you collect? Include predictions for what the data will look like under each hypothesis.

5. Describe (and, if possible, diagram) your results. What can you conclude about the cause of deformity? Have the computer tell you the truth. Were you right?

6. Play a bit with scenario four. Can you figure out what is causing the deformities in this scenario, and why there is a difference in the rate of deformity between the ponds?

Extra challenges not included in the tutorial

Reset the FrogPond simulation to scenario one. Under this scenario, deformity is caused by a genetic mutation. There is a single gene that influences leg development. It has two alleles: a normal allele, and a mutant allele that causes deformity.

7. Which allele is dominant and which recessive? Experiment with FrogPond to figure it out, then tell me the answer and explain how you know.

8. Can you give a reasonably accurate estimate of the frequency of the mutant allele in one of your ponds? If so, explain how you came up with your estimate.