



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Meghan R. Carvalho	Project Number J1903
Project Title Will the Autosomal Recessive Mutation of Vestigial Wings Appear in the F1 Generation of <i>Drosophila melanogaster</i>?	
Abstract Objectives/Goals The purpose of my project was to show if an autosomal recessive mutation will appear in the first generation. This project also was designed to differentiate the difference between a dominant trait and a recessive trait. Another purpose was to see how a semi-lethal mutation(vestigial wings) effects a population. Methods/Materials To perform this experiment, I had to do a number of things to insure viable data. I had to first make enough media to fill all the vials, so the flies all had equal living conditions. Then, I had to separate the pupae by wing type and gender to insure virgin flies. Next, I had to wait for the pupae to develop. After that, I crossed the vestigial females with the wild males and the vestigial males with the wild females. After they reproduced, I removed the P1 generation and allowed the F1 generation to develop. When most of the flies hatched, I recorded my data. Results My data was unexpected. In the final vials, 11.8% of the flies carried the vestigial wing mutation while 88.2% of the flies had wild type wings. I had thought that there would be no flies that carried the vestigial wing mutation, but 2 out of 17 showed the phenotype of vestigial wings. In the first vial, 85.7% of the flies had wild type wings, while 14.2% showed the phenotype of vestigial wings. In vial two, 88.9% of the flies had wild type wings, while 11.1% showed the vestigial wing mutation. In the third vial, 100% of the flies had wild type wings, and 05 had the vestigial wing mutation. The last, fourth, vial had no hatching flies; therefore no flies carried the vestigial wing mutation or wild type wings. Conclusions/Discussion In conclusion, my hypothesis was not supported. I thought that no flies would show the phenotype of vestigial wings, but some did. I believe the reason for this is that I accidentally placed a vestigial male with a vestigial female during the sexing process. This would provide for both parents carrying the recessive trait, so the offspring would show this vestigial phenotype. Another explanation is that a heterozygous wild fly carried the mutation on one chromosome, but didn't show the mutation. A heterozygous fly crossed with a double recessive fly produces, 50% of the time, a recessive offspring. All in all, this project demonstrated the difference of dominant versus recessive traits.	
Summary Statement My project demonstrates the difference between dominant and recessive traits.	
Help Received My science teacher helped me order and get my materials; my dad helped my gas the flies	