

## Selective Mapping of the *Drosophila* Genome

**Summary:** I attempted to map eleven different *Drosophila* genes within the creature's genome. This was done by using the Fly Lab activity through the Biology Labs Online website to simulate the crossing of fruit flies with selectable traits. I then made determinations about the locations of each gene on the four different chromosomes. The results of my efforts can be viewed below in diagram 1. Many of the methods I used to make determinations, such as recombination, are used frequently in *Drosophila* gene mapping projects and research (Chen *et al.*, 1998). Similar but much more involved methods are also being used in other areas of *Drosophila* research, such as finding the DNA sequences of the insect's olfactory receptors (Gao *et al.*, 1999).

**Methods & Results:** Eleven different *Drosophila* genes were mapped: sepia eye color (Se), white eye color (W), ebony body color (E), black body color (Bl), yellow body color (Y), shaved bristles (Sv), singed bristles (Sn), miniature wing size (M), curved wing shape (C), lobe eye shape (L), dichaete wing angle (D), and curly wing shape (Cy). I determined the locations for each by interpreting combinations of monohybrid crosses to find sex-linked genes, dihybrid crosses to find chromosome placement and trihybrid crosses to find appropriate sequences (my procedures are presented mostly in order in the following pages, with comments and general notes).



**Diagram 1**

### References:

Chen, B. & Chu, T. & Harms, E. & Gergen, J.P. & Strickland, S., 1998. Mapping of *Drosophila* Mutations Using Site-Specific Male Recombination, *Genetics*, 149(1), pp. 157-163.

Gao, Q. & Chess, A., 1999. Identification of Candidate *Drosophila* Olfactory Receptors from Genomic DNA Sequence, *Genomics*, 1, pp. 31-39.