

Paper-based Genetics Laboratory Exercise Using *Drosophila melanogaster*

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Students often do not connect the processes of meiosis and fertilization at the genetic level. We have developed a laboratory exercise that includes scientific vocabulary and principles to introduce the concepts of meiosis, fertilization, genotype, and phenotype through the model organism *Drosophila melanogaster*. Through this exercise, students explore *Drosophila* chromosomes, genes, the origins of gene names, and the historical significance of those gene names. Students construct genotypes on paper chromosomes then simulate meiosis and fertilization. The students are required to construct illustrations of the fly offspring at larval and adult life stages complete with all traits included in the exercise. We have used this exercise in our introductory course for majors; students report enjoyment of the exercise and retention of concepts over time.

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