



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
1996 Volume V: Genetics in the 21st Century: Destiny, Chance or Choice

Using *Drosophila* to Teach Genetics

Guide for Curriculum Unit 96.05.01
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This is a unit designed for High School Biology students. Sections of it may also be suitable for middle school students. The objectives are to take basic concepts of genetics and apply them to an organism easily raised and observed in the classroom. *Drosophila melanogaster* offers a way for teachers to help students make connections between populations, the organism, the cell, the chromosome, the gene, and the DNA. The activities in this unit follow this progression. First students carefully observe the organism, noting variations, and generating questions. Secondly they set up and perform genetic crosses, making predictions about traits of the offspring. During the 2 weeks or so of development from egg to adult, the fruit flies provide students with a means to witness and discuss insect metamorphosis. A protocol for salivary gland extraction and staining of chromosomes is included that enables students to see the chromosomes that are responsible for the traits they have observed. There is an activity on making a genetic map based on gene cross-over data provided, and a DNA sequencing simulation based on *Drosophila* protein data from Gen Bank. Finally there is information on using the “Virtual Fly Lab” program available on the INTERNET. A genetic map of *Drosophila melanogaster*, and bibliography, and resource list is included.

(Recommended for Biology/Genetics, grade 10)

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