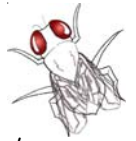




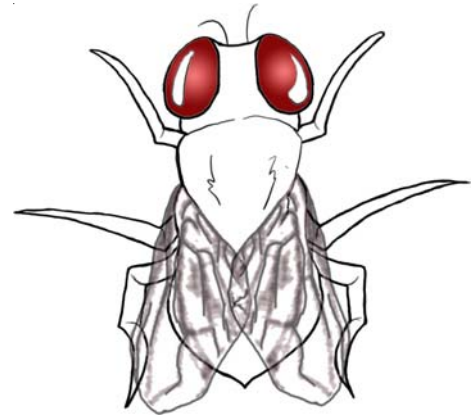
Part 2 -- Journey to Diptera: Genetic Decoding Mission



Breeding several generations of *Musca carniverousa* gave you an idea of how this whole genetic thing works. Now the challenging part of the mission is at hand.....

Using a BioControl Genome Decoder Device you will attempt to discover the identity of 5 more genes. You will breed your fly with others. It may take several rounds of breeding to uncover the answers you seek.

Analyze the data collection methods you used in the first part of our mission. Can you modify them or make similar data collection gathering tools to help you with this part of the mission? The experiment archive sheet may help you to design tests for individual genes. The blank gene sheet may also be helpful as you analyze the data. Use all your resources to discover the genome and obtain ownership of the lush tropical island of Diptera.



To begin, start by thoroughly reading all the directions for operating the BioControl Genome Decoder Device.



Part 3 -- Return from Diptera

What did you find out about the genetic makeup of your fly by using the BioControl Genome Decoder?

What strategies did you use to come to this conclusion?

Were some genes easier to decode than others? Why?

What would you do next time to make the decoding process easier?

Besides our fictionalized account of *Musca carniverousa* why would it be useful to know the purpose of a particular gene?

Scientists recently completed the mapping of the entire human genome. Humans have approximately 20 times more DNA than flies. Scientists from around the world collaborated to make the project possible. Find out more about the human genome project by visiting www.genome.gov visit this site

<http://www.genome.gov/Pages/EducationKit/online.htm> for a short video introduction to the project.

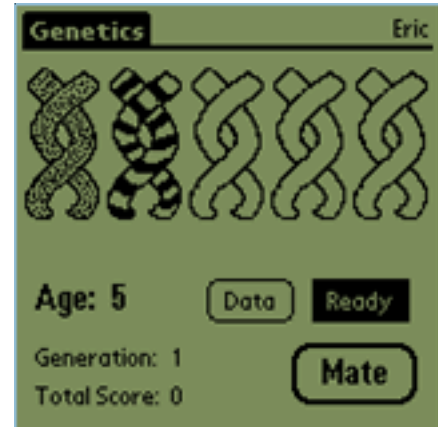


BioControl Genetic Decoder Device Instructions

Decoding the Genome (for students)



Your goal is to live as long as possible and to produce the most robust species of *Musca Carniverosa*. Your ability to survive and reproduce is influenced by your genome so figuring out what the genes stand for is critical to survival. After turning on the decoder use the stylus to click on "Genetics". Start the device by entering your name in the start screen. If you know graffiti use that to enter your name, otherwise click on the small "abc" at the bottom of your screen and a miniature keyboard will appear. It is critical that everyone start the decoder at the same time, so after entering your name, wait for the rest of the class to start. When it starts you'll see that you have a sequence of five genes. Each of the genes stands for a trait. The shading of the genes (solid, striped and clear) determines if the gene is homozygous, heterozygous, dominant or recessive. You will have to figure out which symbol stands for which condition. Your current age (which will constantly increase), generation, and total score are also displayed.



You can mate with other flies by lining up your decoder and having ONE person hit the Mate button (one person is the sender and the other is the receiver). At this point you will either get a confirmation that the mating was successful or a message saying that you were unable to mate. If you successfully mate, each of the parents will disappear and be randomly replaced by one of their offspring. You can think of these organisms as breeding in discrete generations. After the parents reproduce once, they die. When you reproduce successfully and become one of the offspring, your age will go back to zero, your generation will increase by 1 and your score will increase by whatever your age was at the time plus a bonus (age 21-40 = 5 points, age 41-60 = 10 points, age 60+ = 20 points).



When you die, you will receive a message that tells you the age of death, your score and your current generation. At this point you have the option of looking at the data from this round (the matings and resulting offspring) or starting a new round -- you may start at anytime. When playing the game, you may look at your data at any point or if you don't want other people to meet

you, you can press the READY button, which will toggle to say LOCKED. In this mode you can neither send or receive meetings.

