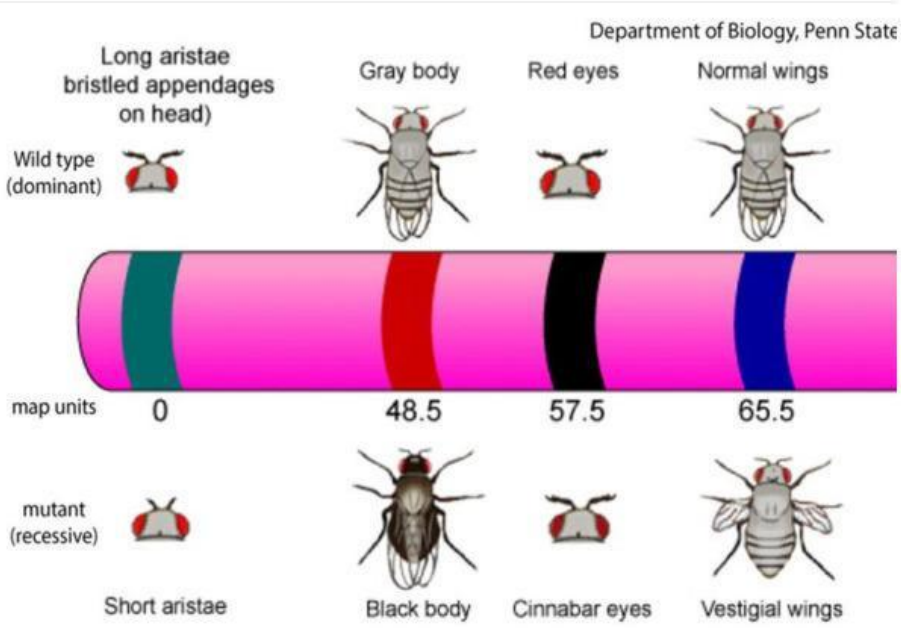
Linkage question by MMoses

1. Figure 1. is an illustrated diagram of a chromosome showing the relative position of 4 genes (length of aristae, color of body, color of eyes, size of wings) in a Drosophila (fly). The diagram also illustrates the phenotypes for each gene. The diagram is not drawn to scale, and only one chromosome is shown. One map unit is equal to one recombination percentage.



a. What are the phenotypes of each of the four genes? (Drag and Drop)

Gene	Phenotype

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b. Which two genes have the highest LD (linkage disequilibrium)?

c. Which two genes have the highest LE (linkage equilibrium)?

We are now required to map a fifth gene that of *length of legs* on to the chromosome. Offspring can have either long legs or short legs. Two Drosophila were crossed and the phenotypes of the offspring are tabulated as below.

d. Calculate the recombination fraction between the genes for *length of aristae* and *length of legs* given the following tabulated information.

	Phenotype	No. of individuals
Parents	Short aristae, long legs	
	Long aristae, short legs	
Offspring	Short aristae, long legs	2000
	Long aristae, short legs	1500
	Short aristae, short legs	200
	Long aristae, long legs	300

%

END

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