



Name _____

Period _____

Date _____

SECTION

7.3

GENE LINKAGE AND MAPPING

Reading Guide

KEY CONCEPT

Genes can be mapped to specific locations on chromosomes.

VOCABULARY

linkage map

MAIN IDEA: Gene linkage was explained through fruit flies.

1. What is gene linkage?

2. Why were fruit flies useful in Morgan's research?

3. What is the difference between a wild type and a mutant type?

4. What did Morgan conclude from his research on fruit flies?

Complete the sequence below to take notes about the discovery of gene linkage.

Mendel

:

Genes assort
independently of one
another.



Punnett, Bateson:



Morgan:

READING GUIDE, CONTINUED

MAIN IDEA: Linkage maps estimate distances between genes.

5. How is the distance between two genes related to the chance they are inherited together?

6. What hypothesis was the basis of Sturtevant's research?

7. What is a linkage map?

8. How are cross-over frequencies related to linkage maps?

9. What do linkage maps show about genes on a chromosome?

Use the cross-over frequencies given below to draw a linkage map for the four genes listed. Think about the relationship between cross-over frequency and distance in linkage map units. Use Figure 7.11 to help you make the linkage map. Put gene A on the far left of the map, then work through the distances between the gene pairs.

Cross-over Frequencies:	Linkage Map
A-B 20%	
B-C 5%	
A-C 25%	
A-D 7%	
D-B 13%	
D-C 18%	