

The Chromosomal Basis of Inheritance

Chapter 15

1. Summarize the Chromosomal Theory of Inheritance.
2. Show the cross between a homozygous, red-eyed female fruit fly and a white-eyed male fruit fly.
3. Alleles are supposed to assort independently into gametes. How do linked genes violate this law?
4. Looking at progeny, how might one guess that two genes are linked?
5. When studying linked genes, how do you explain the appearance of progeny that do not share either parental phenotype?
6. How can recombination data be used to map genetic loci?
7. How does a linkage map differ from the actual organization of a chromosome?
8. What is meant by the term sex-linked trait?
9. In the X-Y system, why are sex-linked, recessive traits more prevalent in males than females?
10. a) What is meant by X-inactivation and when does it occur?
b) What happens to X chromosomes that are inactivated?
c) How does this inactivation affect the expression of sex-linked traits in females?
11. How does nondisjunction occur?
12. Define the common types of aneuploidy.
13. How can a parent learn the risks of having a child with a genetic disorder?
14. Describe a procedure that can be used to detect genetic defects early in pregnancy.
15. Define deletion, duplication, inversion, and translocation alterations of chromosomes.
16. What are extranuclear genes and how are they inherited?