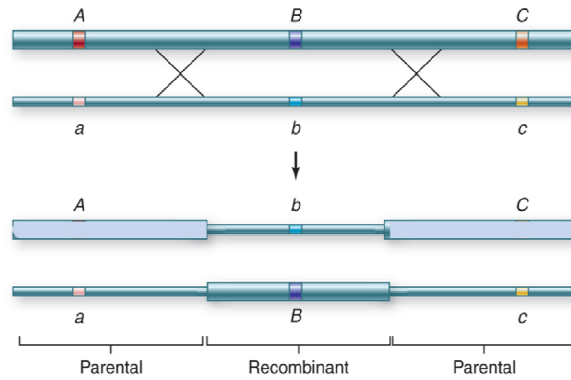


Chapter 13 – Chromosomes, Mapping, and the Meiosis-Inheritance Connection



1. Summarize the **Chromosomal Theory of Inheritance**.

2. Describe **Thomas Hunt Morgan**'s first mutant fruit fly. Why was this fly so significant?

3. Show the cross P, F₁, F₂ for the white-eyed male mutant.

4. Explain the difference between **autosomal chromosomes** and **sex chromosomes**.

5. What determines sex in humans? _____

6. How many X chromosomes are typically expressed in humans? _____

7. What is meant by a trait being **sex-linked**?

8. Why are sex-linked recessive traits more common in males than females?

9. What happens to X chromosomes that are **inactivated**? How does this inactivation affect the expression of sex-linked traits in females?

10. How many **Barr bodies** would be found in a person with: **XXY**_____ **XO**_____ **XXX**_____.

11. X chromosome inactivation can lead to **genetic mosaics**. Explain using the example of the calico cat.

12. Explain the concept of **maternal inheritance**.

13. What happens when we trace the inheritance of traits found on the same chromosome?

14. Explain how two genes on the same chromosome can still assort independently.

15. What is **genetic recombination** and when does it occur?

16. How is recombination frequency used to develop a **genetic map**?

17. Geneticists use three-point crosses to determine the _____.
Geneticists use data from the closest two-point crosses to determine _____.

18. Briefly describe each of the following genetic disorders:

a. **Tay-Sachs** _____

b. **Huntington disease** _____

c. **Hemophilia** _____

d. **Sickle cell anemia** _____

19. List and describe a few specific examples of **non-disjunctions** that occur in humans.

a. _____

b. _____

c. _____

d. _____

20. Explain the concept of genomic imprinting. Provide an example in humans.

21. How can a parent learn the risks of having a child with a genetic disorder?

22. Explain 2 medical procedures that can be used to detect genetic defects early in pregnancy.

a.

b.
