Module 10: Meiosis and Sexual Reproduction

1. Define gametes and zygotes.
2. Why must gametes be haploid (n) while somatic cells are diploid (2n)?
3. What is separated in Anaphase I? (Homologous pairs)
4. What is separated in Anaphase II? (Sister chromatids)
5. Describe crossing over (recombination). When does it occur?
6. Describe independent assortment. How does random alignment create unique gametes?
7. Create a comparison table:
8. End Product**: 2 diploid identical cells vs. 4 haploid unique cells.
9. Purpose**: Growth/repair vs. reproduction.
10. Divisions**: 1 vs. 2.
11. How many pairs of autosomes do humans have? How many pairs of sex chromosomes?
12. What determines biological sex in humans?
13. Define nondisjunction.
14. If nondisjunction occurs in Meiosis I, how many abnormal gametes result? What if it occurs in Meiosis II?
15. Explain the cause of Down Syndrome (Trisomy 21).
16. Asexual reproduction is efficient; sexual reproduction is costly. Evaluate why sexual reproduction remains prevalent despite this cost. (Genetic diversity)