

Unit 6 Biology Study Guide

1. What is a somatic cell? How many chromosomes does a human somatic cell contain? Provide an example.
2. What is a gamete? How many chromosomes does a human gamete contain? Provide an example.
3. What is an autosome?
4. What is a sex chromosome?
5. What is a karyotype? What does a male karyotype look like? Female?
6. Draw a picture to explain the difference between sister chromatids and homologous chromosomes.
7. Draw a simplified diagram of meiosis.
8. What type of cell is found at the beginning of meiosis? (diploid or haploid)
9. What type of cell is found at the end of meiosis? (diploid or haploid)
10. How do cells alternate from haploid and diploid throughout the human life cycle? What processes lead to different cell types?
11. How did Mendel's data disprove the blending hypothesis?
12. What does it mean if an organism is true-breeding? Hybrid? How does this play a role in self-fertilization?
13. Why do gametes only have one version of each gene?
14. Where are genes found? What do they code for and what are their various forms called?
15. Explain the difference between genotype and phenotype.
16. What is the difference between a dominant and recessive allele? When will they each be expressed in a phenotype?
17. How can a Punnett square be used to make predictions of offspring?
18. Complete a Punnett square given the following parents: Bb x Bb
19. What is the probability these parents will have a child with the dominant phenotype? Recessive phenotype?
20. Complete a Punnett square given the following parents: AaBb x AaBb
21. What is the probability these parents will have a child with the dominant phenotype for **both** traits?
22. What is a testcross and when is it used?
23. What is Mendel's Law of Independent Assortment?
24. What is an autosomal gene?
25. What is a sex-linked gene?
26. Which sex or sexes can be carriers with autosomal disorders?
27. Which sex or sexes can be carriers with sex-linked disorders?
28. How does a sex-linked trait affect the number of male and female offspring?
29. How are the resulting phenotypes found in traits that have codominance different from those that have incomplete dominance?
30. How does the environment play a role in determining an organism's phenotype?

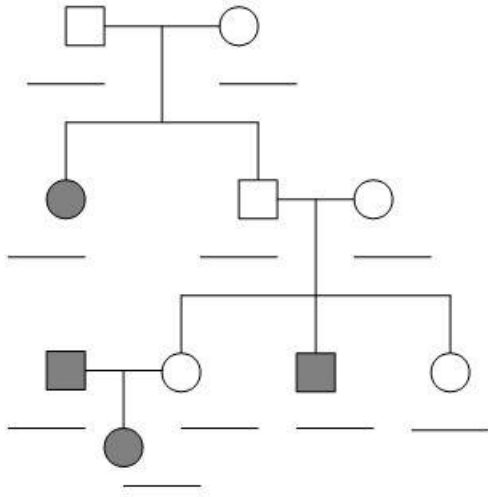
31. Complete a Punnett square given the following parents: $I^A I^B \times ii$

a. What are the phenotypes of the parents?

b. What are the possible phenotypes and genotypes of the offspring?

32. How is a pedigree used to map genetic inheritance?

33. Given the following pedigree, predict possible genotypes and phenotypes for each family member.



member.

34. How can genetic screening detect genetic disorders?