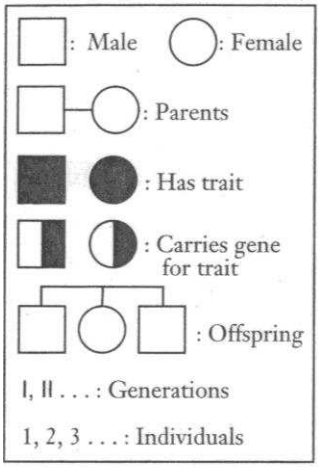
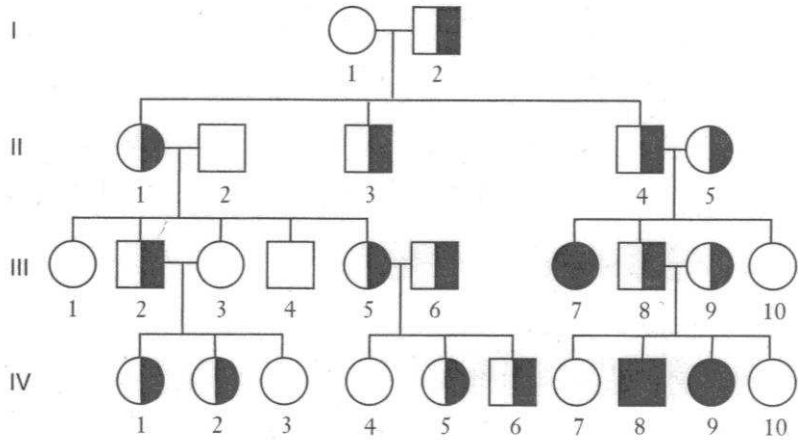
Name _____ Period _____ Date _____

Pedigree Worksheet 1

Sickle Cell Anemia

Analyze the pedigree for sickle-cell anemia. Use the key below to the left to help. Remember, sickle-cell anemia is a recessive blood disorder. After analyzing, answer the questions.





1. How many generations are represented in the pedigree? _____
2. In generation I, which parent is heterozygous for the recessive allele? _____
3. How many offspring from generation I inherited the sickle-cell allele? _____
4. Which individual in generation II marries a spouse who is homozygous dominant? _____
5. In which generation does the first case of sickle-cell **anemia** appear? _____
6. Which generation contains the most male **carriers**? _____
7. Have any individuals had incestuous relationships? If so, which ones? _____
8. Can two carriers produce an individual with sickle-cell anemia? _____
9. Can a normal homozygous individual produce offspring with sickle-cell anemia? _____
10. Which parents produce two children with sickle-cell anemia? _____
11. If individual IV-1 mates with a male carrier for sickle-cell trait, what is the chance their first offspring will have sickle-cell anemia?

12. If individual IV-10 mates with another individual, is there any way an offspring could have sickle-cell anemia? Explain.