Pedigree A – Deaf Mutism: One form of deafness in humans is a type in which the individual inherits not only deafness but also the inability to talk.

Fill in the genotypes for each of the following individuals in the pedigree below. Use the symbols D for dominant normal and d for recessive deaf mutism.

What pattern of inheritance does this pedigree demonstrate? **Autosomal Recessive**

1. What is a picture of the inheritance of a trait over many generations called? **pedigree**

2. What is the sex of IV-5? **female**  II-4? **male**

3. How many individuals in the pedigree above are affected with the trait? Write the number of the persons who are affected.  **15**

4. How did II-1 and II-2 have a child, III-2, who is a deaf mute? What are the genotypes of II-1 and II-2? Use the Punnett square to prove your answer.

   a. genotype of II-1 **Dd**

   b. genotype of II-2 **dd**

5. What is the chance of having a child with deaf mutism in the Punnett Square above? **25%**
Pedigree B - Hemophilia: Hemophilia is a disease of the circulatory system. It is sometimes called bleeder's disease because persons with the disease have a very slow clotting time when injured. An affected person can bleed to death from minor wounds or internal injuries. Use the symbols H for normal and h for hemophilia. If the trait is X-linked, include the XX for females and the XY for males. After finishing your pedigree analysis (questions 1-5), fill in the genotypes in the pedigree below.

What pattern of inheritance does this pedigree demonstrate? Sex-Linked Recessive

1. Is hemophilia more common in males or females? Males

2. Is hemophilia carried on the X or Y chromosome? X

3. Who in the family is a hemophiliac? 11-1, 5; 11-2, 8, 9, 10; 11-16; 11-6

4. What is a carrier? Person who does NOT express the trait, but can pass it on

5. Who in the family is a carrier? 1-2; 11-2, 11-4, 11-8, 11-5

Draw and analyze your own pedigree.

A. Julie and Steven are married and have two girls, Hannah and Avery. Julie’s parents are Glenn and Pearl, and Julie’s sister is Deborah. Deborah is not married. Steven’s brother, Jason, is married to Betsy, and they have three sons, Bryan, Christopher, and Craig. Steven, Bryan, and Avery all have twelve fingers. Shade the circle or square of any person with twelve fingers.