Genetics Review

1. What is an allele? How many does an individual have? Where do you get your allele(s) from?
2. T is the allele that codes for Tall Plants and t is the allele that codes for short plants. Complete a Punnett square for 2 heterozygous parents. If this trait follows basic Mendelian inheritance, how many tall offspring are there? How many short?
3. If the Tall allele actually followed an incomplete dominance pattern, what phenotype would you expect to see from a heterozygote?
4. What is the difference between incomplete dominance and codominance?
5. What is the difference between multiple alleles and polygenic traits?
6. A dad is type B blood and mom is type AB. Can they have a baby that is type O blood? Use a Punnett Square to prove your answer.
7. Why are there no male Calico Cats? Describe the inheritance pattern that calico follows and explain why only females can be calico color. (If you don’t remember this from your notes, check the PowerPoint that is on the website)
8. Describe why skin color is a polygenic trait.
9. What is epigenetics? What are some environmental factors that can influence what genes are expressed?
10. What is a Pedigree? Why could doctors use a pedigree? Use the pedigree on the back to answer the questions
    1. What are the three marriages in this Pedigree?
    2. How many children did Curtis and Anne have? How many boys? How many girls?
    3. This pedigree shows a recessive genetic disorder, where affected individuals have the genotype jj. What are the genotypes of both Kate and Joe?
    4. What two genotypes could Anne be? What genotype does Natalie have to be?

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