



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Amarie C. Bremel	Project Number 28367
Project Title Blue Genes	
Objectives/Goals My project is relevant to Australian shepherd breeders because my project is about Aussie's (Australian shepherd's) color genetics. My hypothesis is: When raising Australian Shepherd dogs, there is a 50% probability of getting merle offspring if crossing heterozygous to homozygous recessive. My project is: If an Aussie breeder crosses a homozygous (two identical genes in one pair that are both recessive) merle (a modification of the solid black or red color) with a heterozygous (two different genes in one pair a dominate which is the black color and a recessive red color. In this case the dog will appear black) black, what is the probability the offspring will be merle? This is important to them because some colors are more popular and therefore they will sell easier. This is also important to me because I want to know why my Aussie is a merle. Abstract My project is relevant to Australian shepherd breeders because my project is about Aussie's (Australian shepherd's) color genetics. My hypothesis is: When raising Australian Shepherd dogs, there is a 50% probability of getting merle offspring if crossing heterozygous to homozygous recessive. My project is: If an Aussie breeder crosses a homozygous (two identical genes in one pair that are both recessive) merle (a modification of the solid black or red color) with a heterozygous (two different genes in one pair a dominate which is the black color and a recessive red color. In this case the dog will appear black) black, what is the probability the offspring will be merle? This is important to them because some colors are more popular and therefore they will sell easier. This is also important to me because I want to know why my Aussie is a merle. Methods/Materials Procedure: The first step in my project is to collect two hundred litter charts (charts that show every puppy in the litter and their color) of a heterozygous black parent and a homozygous recessive merle(to ensure correct genetic make up look at the parents parents). Then create an excel spreadsheet to track results you will get in the next step. After that insert the information you collect from one hundred of the litter charts in to the spreadsheets. To continue analyze this information and repeat this process over with the other one hundred litter charts. Finally prove your hypothesis correct or incorrect. Materials: 1. Litter charts representing two hundred puppies with homozygous recessive and heterozygous parents 2. Photographs and descriptions of color patterns 3. Excel spreadsheet for tracking results 4. Journal to keep track of your progress Results In the first test, of one hundred puppies, there were 53 solids and 47 merles. The second time through, another test of one hundred puppies, there were 46 solids and 54 merles. Total there were 99 solids and 101 merles. Conclusions/Discussion When my experiment was over, I found that my hypothesis was correct. The number of merle and solid puppies were almost the same. In the first test, of one hundred puppies, there were 53 solids and 47 merles. The second time through, another test of one hundred puppies, there were 46 solids and 54 merles. Total there were 99 solids and 101 merles.	
Summary Statement If an Australian Shepherd breeder were to cross a homozygous recessive merle to a heterozygous black, what is the probability that the offspring will be merle?	
Help Received Mother helped type; mothers friend thats a dog breeder gave copies of litter charts	