Analysis

1. You have a female dog that is heterozygous for fur length. To have the BEST chance of breeding a puppy with short fur, what does the genotype of the father need to be? Do a punnet square to show the odds of producing a short-fur puppy.

2. You have a black collie that is heterozygous for fur color. If you want to have the BEST chance of breeding a puppy with brown fur, what should the father's genotype be? Do a punnet square to show the odds of producing a puppy with brown fur.

PBS Dog Breeding Game

1. **Goal**: My goal is to breed a puppy with _____ fur.

2. **Possible phenotypes**: _____

3. **Dominant trait**: _____, **symbol**: _____, **Letter**: _____

4. **Recessive trait**: _____, **symbol**: _____, **Letter**: _____

5. **Desired genotype(s)**:
   _____

6. **Directions**: *Select the parents that will give you the best chance of producing a puppy with the trait you want. Record their information in the table below.*

Parent	Phenotype	Genotype (letters)	Genotype (words)
Father			
Mother			

7. On the lines in your science notebook, do a punnet square showing the possible genotypes of offspring from these parents.

8. With these parents, what are the odds of producing a puppy with the trait you desire?

9. Your puppies:
   Record the information about any puppies you make in the table below. Add lines in your science notebook if you need to.

Puppy	Phenotype	Genotype (letters)	Genotype (words)
1st			
2nd			
3rd			

LEVEL 1 – Round 2

1. **Goal**: My goal is to breed a puppy with _____ fur.

2. **Possible phenotypes**: _____

3. **Dominant trait**: _____, **symbol**: _____, **Letter**: _____

4. **Recessive trait**: _____, **symbol**: _____, **Letter**: _____

5. **Desired genotype(s)**:
   _____

6. **Directions**: *Select the parents that will give you the best chance of producing a puppy with the trait you want. Record their information in the table below.*

Parent	Phenotype	Genotype (letters)	Genotype (words)
Father			
Mother			

7. On the lines in your science notebook, do a punnet square showing the possible genotypes of offspring from these parents.

8. With these parents, what are the odds of producing a puppy with the trait you desire?

9. Your puppies:
   Record the information about any puppies you make in the table below. Add lines in your science notebook if you need to.

Puppy	Phenotype	Genotype (letters)	Genotype (words)
1st			
2nd			
3rd			
4th			
5th			

LEVEL 1 – Round 3

1. How is this trait different from the other traits we have worked with so far?

2. **Possible phenotypes**: _____
3. **Trait 1**: Floppy ears, **Symbol:** _____, **Letter:** _F_
4. **Trait 2:** Straight ears, **Symbol:** _____, **Letter:** _S_
5. **Trait 3:** Medium floppy ears
6. **Desired genotype(s)**: _____
7. **Directions**: *Select the parents that will give you the best chance of producing a puppy with the trait you want. Record their information in the table below.*

Parent	Phenotype	Genotype (letters)	Genotype (words)
Father			
Mother			

8. On the lines in your science notebook, do a punnet square showing the possible genotypes of offspring from these parents.

9. With these parents, what are the odds of producing a puppy with the trait you desire?

10. Your puppies:
    Record the information about any puppies you make in the table below. Add lines in your science notebook if you need to.

Puppy	Phenotype	Genotype (letters)	Genotype (words)
1st			
2nd			
3rd			
4th			