

## Dihybrid Punnett Square Notes

**Dihybrid Crosses:** Consider the inheritance of alleles of two genes.

Example: Suppose that in dogs, curly tail (t) is recessive to straight tail (T). In dogs, long hair (h) is also recessive to short hair (H). Suppose a male dog heterozygous for each trait and a curly-tailed, long haired female dog have puppies.

- a. What is the phenotype of the mother? Curly Tailed, Long Haired
- b. What is the genotype of the mother? tthh
- c. What is the phenotype of the father? Straight Tailed, Short Haired
- d. What is the genotype of the father? TtHh
- e. How many different types of gametes can be formed by the mother? 1  
The genotypes of the gametes are: curly and long
- f. How many different types of gametes can be formed by the father? 4  
The genotypes of the gametes are: straight, curly, short, and long
- g. Draw a Punnett square for this mating below. tthh x TtHh
- h. What is the ratio of the offspring that are curly and short haired? 4:16 or 1:4
- i. What is the ratio of the offspring that have the genotype tthh? 4:16 or 1:4

	th	th	th	th
TH	TtHh	TtHh	TtHh	TtHh
Th	Tthh	Tthh	Tthh	Tthh
tH	ttHh	ttHh	ttHh	ttHh
th	tthh	tthh	tthh	tthh

Example: P<sub>1</sub> - RrYy x RrYy  
Both parents are round yellow

Pea seeds: R – round                      Y - yellow  
                  r – wrinkled                      y - green

	RY	Ry	rY	ry
RY	RRYY	RRYy	RrYY	RrYy
Ry	RRYy	RRyy	RrYy	Rryy
rY	RrYY	RrYy	rrYY	rrYy
ry	RrYy	Rryy	rrYy	rryy

F<sub>1</sub> Generation's traits

- 1) How many round yellow? 8
- 2) How many round green? 4
- 3) How many wrinkled yellow? 3
- 4) How many wrinkled green? 1