

**COMPLETE THE FOLLOWING PUNNETT SQUARE QUESTIONS:****PART 1**

1. If a father(CC) and a mother(cc) have children, what will be the expected proportion of the following genotypes?

CC –

cc –

Cc –

2. If a father(cc) and a mother(CC) have children, what will be the expected proportion of the following genotypes?

CC –

cc –

Cc –

3. If a father(Cc) and a mother(CC) have children, what will be the expected proportion of the possible genotypes?

4. If a father(Cc) and a mother(Cc) have children, what will be the expected proportion of the possible genotypes?

**PART 2**

Using the example below as a guide to how to answer the **questions** that follow.

**Example**

Curly hair is dominant over straight hair. One parent has a curly hair and a straight hair allele. The other parent has two straight hair alleles.

- a. Write the dominant and recessive genes and assign letters to traits

**The curly hair allele is dominant (C) and the straight hair allele is recessive (c).**

- b. Write the parental phenotypes

**Parent 1 - Curly haired**

**Parent 2 - Straight haired**

- c. Write the parental genotypes

**Parent 1 - Cc**

**Parent 2 - cc**

- d. Write whether the parents are homozygous or heterozygous

**Parent 1 - Heterozygous**

**Parent 2 - Homozygous**

### Questions

1. One parent has a dominant allele for dark hair and a recessive allele for light hair. The other parent has two recessive alleles for light hair.
  - a. Write the dominant and recessive genes with symbol letters
  - b. Write the parental genotypes
  - c. Write the parental phenotypes
  - d. Write whether the parents are homozygous or heterozygous
2. One parent has two dominant alleles for dimples and the other parent has two recessive alleles for no dimples.
  - a. Write the dominant and recessive genes with symbol letters
  - b. Write the parental genotypes
  - c. Write the parental phenotypes
  - d. Write whether the parents are homozygous or heterozygous

### PART 3

1. Use the Punnett square given to predict the phenotypic and genotypic outcome (offspring) of a cross between a plant heterozygous for yellow (Yy) peas and a plant homozygous for green (yy) peas. Yellow is dominant and is shown by a capital Y, green is recessive and is shown by a small y.

	y	y
Y		
y		

2. In humans Large nose(N) is dominant over small nose(n). Use a Punnett Square to predict the phenotypes and genotypes that result from a cross between two parents heterozygous for big noses.

3. Brown eye colour(B) in humans is dominant over blue eye colour(b). Use a Punnett square to predict the phenotypes and genotypes that are produced when a homozygous brown eyed mother and a homozygous blue eyed father produce offspring.
  
  
  
  
  
  
  
  
  
  
4. Migraine headaches(H) are dominant over no migraine headaches(h). Use a Punnett Square to predict the probable phenotypes and genotypes when two parents heterozygous for migraine headaches produce offspring.
  
  
  
  
  
  
  
  
  
  
5. Recall that a mother is homozygous female and a father is heterozygous male. If the male gene is dominant, what is the probable phenotype and genotype for the offspring? Use a Punnett Square to illustrate your answer.

