

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## PUNNETT SQUARE PRACTICE

Draw a Punnett Square to show a cross between a true-breeding (homozygous) purple pea plant with a true-breeding (homozygous) white pea plant. Describe the genotypes and phenotypes of the offspring.

$PP \times pp$

$PP \times p$  Genotypes of offspring:  
100% of the offspring are heterozygous,  $Pp$

Phenotypes of offspring:  
100% of the offspring are purple

	$P$	$P$
$p$	$Pp$	$Pp$
$p$	$Pp$	$Pp$

Which plants are the  $P$  generation? Which ones are  $F_1$ ?

$P$  generation is the parents:  $PP$  and  $pp$ . The  $F_1$  generation is the offspring:  $Pp$ .

Use a Punnett square to show a cross between two plants that were produced in #1. List the genotypes and phenotypes of each  $F_2$  offspring.

$Pp \times Pp$

	$P$	$p$
$P$	$PP$	$Pp$
$p$	$Pp$	$pp$

1 out of 2 or 50%  $Pp$ , heterozygous, purple  
1 out of 4 or 25%  $pp$ , homozygous recessive, white  
1 out of 4 or 25%  $PP$ , homozygous dominant, purple

Punnett Square results are often stated in terms of fractions or percentages, but sometimes we use the terms genotypic ratio and phenotypic ratio to describe the results of a cross. For example, the genotypic ratio of the cross in #3 is:

1  $PP$ : 2  $Pp$ : 1  $pp$

or you can say 1 homozygous dominant: 2 heterozygous : homozygous recessive  
or just 1:2:1

The phenotypic ratio is

3 purple: 1 white

or you can say 3 dominant: recessive  
or just 3:1