

Name: _____

Date: _____

Notes: Punnett Squares

How are the instructions for proteins written inside of DNA molecules?

What is a **gene**? _____

Define **allele**: _____

How many copies of each gene do diploid organisms contain? _____

What kind of allele is *always expressed*? _____

How do we represent a dominant allele? _____

When are recessive alleles expressed? _____

How do we represent a recessive allele? _____

Define **homo-** _____ Define **hetero-** _____

Define **zygous**- _____

Define **homozygous** _____

Define **heterozygous** _____

Besides knowing that an organism is homozygous, what else do you need to know?

Define **genotype** _____

Define **phenotype** _____

What do we use to predict genotypes and phenotypes? _____

What does each box in a Punnett square represent? _____

What are the 3 main ways that we will report the results of a Punnett square?

Will the offspring that are produced always match the predicted ratios? _____

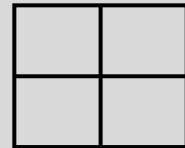
What must you have in order to really see the predicted ratios? _____

Allele	Trait
T	Tall
t	Short
S	Smooth peas
s	Wrinkled peas
P	Purple flowers
p	White flowers

Description	Genotype	Phenotype
Homozygous recessive pea shape		
Heterozygous for height		
Homozygous recessive for height		
Heterozygous for flower color		
Heterozygous for pea shape		
Homozygous dominant for height		
Homozygous dominant for pea shape		
		white flowers

1. A plant that is heterozygous for pea shape is crossed with another plant that is also heterozygous for pea shape.

a. What percentage of offspring will have wrinkled peas? _____



b. What fraction of offspring will be heterozygous for pea shape? _____

2. A plant that is homozygous dominant for height is crossed with a plant that is heterozygous for height.

a. What percentage of offspring will be tall? _____

b. What will be the ratio of genotypes in the offspring? _____

3. A plant that is heterozygous for flower color is crossed with a plant that has white flowers.

a. What fraction of offspring will have white flowers? _____

b. What percentage of the offspring will be heterozygotes? _____

4. A plant that is homozygous dominant for pea shape is crossed with a plant that has wrinkled peas.

a. What will be the ratio of smooth peas to wrinkled peas? _____

b. What percentage of offspring will have wrinkled peas? _____

5. Two plants that both have heterozygous genotypes for height are crossed to produce offspring.

a. What fraction of pea plants will be tall? _____

b. What will be the ratio of tall plants to short plants? _____

6. A plant that is heterozygous for flower color is crossed with a plant that is homozygous dominant for flower color.

a. What percentage of offspring will have purple flowers? _____

b. What will be the ratio of genotypes in the offspring? _____