

Using the Punnett Square
Dominant - Recessive Traits

Name _____

Date _____

Period _____

1. Define the following genetics vocabulary.
Trait

Phenotype

Genotype

Allele

Dominant

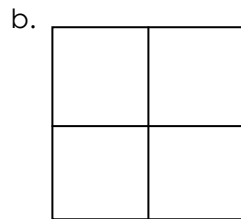
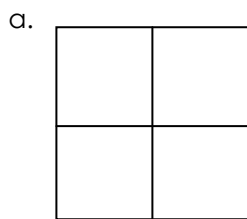
Recessive

Homozygous

Heterozygous

2. Steps for doing a Punnett Square.

- a. Outside the Punnett Square **separate each parent's genotype** into the egg/sperm possibilities.
- b. Make the **four possible crosses** with these possible egg/sperm genes.
- c. Look at the four possible genotypes and determine what the possible **phenotypes** are.
- d. Write down the possible **phenotypes as percentages**.

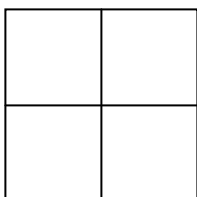


c.

d.

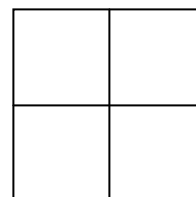
Sample problems:

Freckles - F=present, f=absent
FF x Ff



Phenotype results as percentages

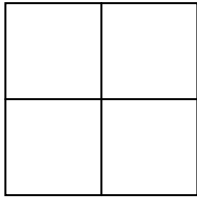
Widow's Peak - W=present, w=absent
Ww x ww



Phenotype results as percentages

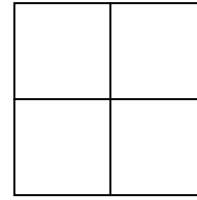
3. Make the following dominant/recessive crosses using a Punnett Square. (1 point each)
 Make sure your capital and small letters are clearly different.
 Next to each Punnett Square, write the **percentage probability** of the resulting possible **phenotypes**.

a. Mendel's pea plant flower color
 P = purple, p = white **PP x Pp**



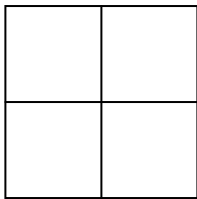
Phenotype results as percentages

b. Eyelashes
 L = long, l = short **Ll x ll**



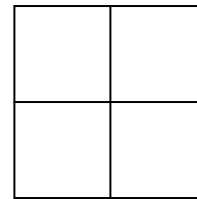
Phenotype results as percentages

c. Tongue rolling
 R = can roll, r = can't roll **Rr x Rr**



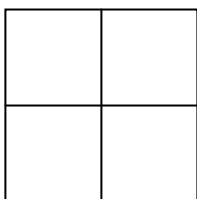
Phenotype results as percentages

d. Ear wax
 W = sticky, w = dry **WW x ww**



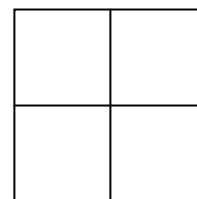
Phenotype results as percentages

e. Cleft chin
 C=present, c=absent **CC x Cc**



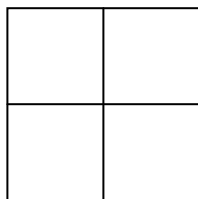
Phenotype results as percentages

f. Hitch hiker's thumb (double jointed)
 H=present, h=absent **Hh x Hh**



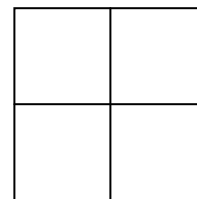
Phenotype results as percentages

g. Earlobes
 E=free, e=attached **Ee x ee**



Phenotype results as percentages

h. PTC paper
 P=taste, p=not taste **Pp x pp**



Phenotype results as percentages