# Punnett Square Worksheet

**Black is the dominant fur color for rabbits and white is the recessive. B stands for the black allele and b represents the white allele. A white rabbit would have a genotype of bb and a black rabbit could have a genotype of BB or Bb.**

1. Fill in the missing information for each Punnette square below:

**Cross 1**

| | B | B |
|---|---|---|
| B | | |
| B | | |

**Cross 2**

| | b | b |
|---|---|---|
| b | | |
| b | | |

**Cross 3**

| | B | b |
|---|---|---|
| B | | |
| b | | |

**Cross 4**

| | B | B |
|---|---|---|
| B | | |
| b | | |

**Cross 5**

| | b | b |
|---|---|---|
| B | | |
| b | | |

**Cross 6**

| | B | b |
|---|---|---|
| B | | |
| B | | |

**Cross 7**

| | B | b |
|---|---|---|
| b | | |
| b | | |

**Cross 8**

| | | |
|---|---|---|
| | Bb | Bb |
| | Bb | Bb |

**Cross 9**

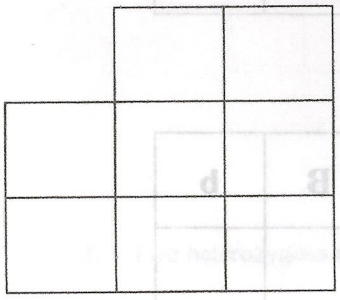
| | | |
|---|---|---|
| | BB | Bb |
| | BB | Bb |

2. List the probability of having black fur for each cross
   - Cross 1:
   - Cross 2:
   - Cross 3:
   - Cross 4:
   - Cross 5:
   - Cross 6:
   - Cross 7:
   - Cross 8:
   - Cross 9:

3. List the probability of having white fur for each cross
   - Cross 1:
   - Cross 2:
   - Cross 3:
   - Cross 4:
   - Cross 5:
   - Cross 6:
   - Cross 7:
   - Cross 8:
   - Cross 9:

4. What are the genotypes of the parents for crosses 8 & 9
   - Cross 8:
   - Cross 9:

5. Assume tall (T) is dominant for pea plants and short (t) is recessive. Fill in the Punnette square that would result when a plant with genotype Tt is crossed with another plant with genotype tt.



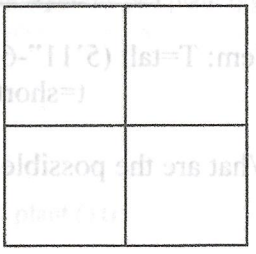
6. From the cross above what is the probability of having a short pea plant?

# IA2: Punnett Square Worksheet-Human Characteristics

Directions: Complete the following Punnett Squares. Be sure that you include the ratios of the genotypes (and the words used to describe those alleles) and phenotypes of the characteristics. See the example on webpage if you need a reminder. For extra help, you can contact Noemi Waight at nwaight@uiuc.edu . She will answer any questions you may have.

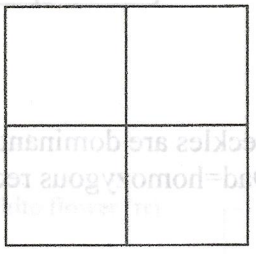
1. B= Brown eyes b= blue eyes Mom= Bb Dad= BB What are the eye color possibilities if they chose to have children?

Genotypes Phenotypes



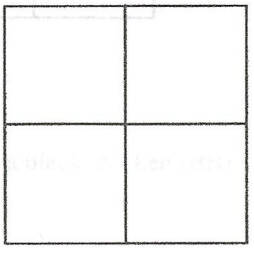
2. Curly hair is recessive, and straight hair is dominant. A woman with curly hair marries a man who is homozygous dominant for straight hair. Predict the outcomes for their children.

Genotypes Phenotypes



3. Black hair is homozygous dominant. Brown hair is heterozygous. Blonde hair is homozygous recessive. (This is an example of incomplete dominance.) A woman with brown hair marries a man with brown hair. What are the possible outcomes for their kids?

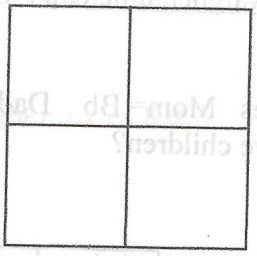
Genotypes Phenotypes



4. Attached earlobes are dominant over free hanging earlobes. Complete the Punnett Square for the following individuals: Mom=BB and Dad=bb

Genotypes

Phenotypes



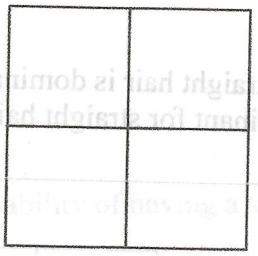
5. Incomplete dominance problem: T=tall (5'11"-6'2"); Tt=medium height (5'4"-5'10")
t=short (5'3" or smaller)

Mom= 5'5"
Dad= 6'0"

What are the possible height outcomes of their children?

Genotypes

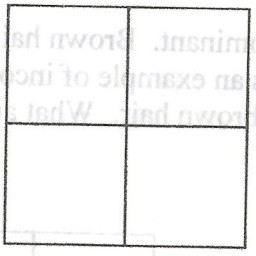
Phenotypes



6. Freckles are recessive. No freckles are dominant.
Mom= heterozygous Dad=homozygous recessive Possible outcomes for kids?

Genotypes

Phenotypes



**Punnett square worksheet**

Complete the following monohybrid crosses: draw a Punnett square, list the ratio and describe the offspring. Be sure to remember that the **capital letter is dominant**.

Example)

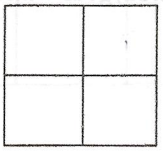
A green pea plant (GG) is being crossed with a green pea plant (Gg) yellow is the recessive color.

| | G | G |
|---|---|---|
| G | GG | GG |
| g | Gg | Gg |

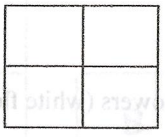
GenoType= 2 GG: 2 Gg ; 0 gg

Phenotype= 4 Green pea plants: 0 yellow pea plants

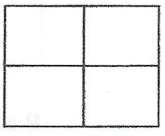
1) A green pea plant (Gg) is crossed with a yellow pea plant (gg).



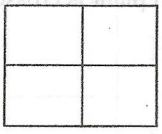
2) A tall plant (TT) is crossed with a tall plant (Tt).



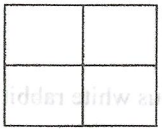
3) A tall plant (Tt) is crossed with a short plant (tt).



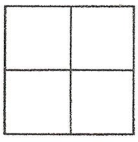
4) A red flower (Rr) is crossed with a white flower (rr).



5) A white flower (rr) is crossed with a white flower (rr).



6) A black chicken (BB) is crossed with a black chicken (BB).



**Punnett square problems continued**

Complete the following problems. List the parent genotypes, draw and fill in a Punnett square, and then list the offspring genotypes and phenotypes.

1. A homozygous dominant brown mouse is crossed with a heterozygous brown mouse (tan is the recessive color).

2. Two heterozygous white (brown fur is recessive) rabbits are crossed.

3. Two heterozygous red flowers (white flowers are recessive) are crossed.

4. A homozygous tall plant is crossed with a heterozygous tall plant (short is the recessive size).

5. A heterozygous white rabbit is crossed with a homozygous black rabbit.