

Monohybrid Crosses
Worksheet #1

1. In corn plants, normal yellow colour (Y) is dominant over albinism (y) (lack of colour). Cross the following combinations to determine the offspring possibilities. For each example, state the phenotype and genotype ratios:
 - a) A plant heterozygous for yellow and an albino plant.
 - b) A plant heterozygous for yellow and a plant homozygous dominant for yellow.
 - c) Two plants heterozygous for yellow.

2. In humans, wavy hair (H) is dominant over straight hair (h). What possible genotypes and phenotypes can occur in offspring where one parent is heterozygous for wavy hair and the other parent has straight hair?

3. In humans, brown eyes (B) are always dominant over blue eyes (b). Cross the following and predict the possible genotype and phenotype ratios for the offspring:
 - a) Two blue eyed parents are crossed.
 - b) A female homozygous dominant for brown is crossed with a male with blue eyes.
 - c) A female with heterozygous brown eyes is crossed with a male with blue eyes.
 - d) A female with heterozygous brown eyes is crossed with a male who is also heterozygous.

4. In humans the gene for a space between the two front teeth (S) is dominant over no space (s). (Orthodontists jump for joy!) Cross the following combinations to determine the offspring possibilities stating the phenotype and genotype ratios:
 - a) A female who is heterozygous and has the space between her teeth with a male homozygous dominant for the space.
 - b) A female with no space marries a male that is heterozygous for the space.
 - c) A female with no space marries a male with no space.
 - d) A female that is homozygous dominant for the space marries a male with no space.
 - e) A female who is heterozygous for the space marries a male who is also heterozygous.

5. The presence of freckles is a dominant trait. If you had freckles what genotypes could you be?

6. a) In humans the gene for two wrist cords is dominant over the gene for three wrist cords. Determine the probability that a child with 3 wrist cords will be born to two parents who are both heterozygous and have two wrist cords.

b) In humans tongue rolling (T) is a dominant trait over non tongue rolling (t). What is the probability that a child who can roll her tongue will be born to two parents who cannot roll their tongues?

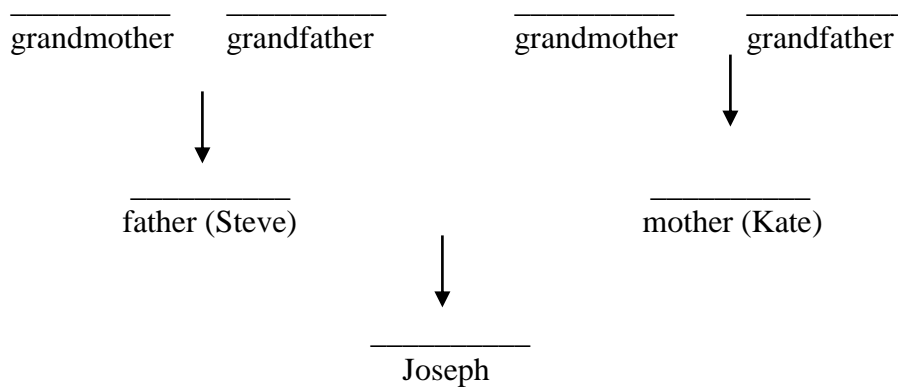
Monohybrid Crosses
Worksheet #2

1. In a certain animal, black fur (B) is dominant over white fur (b). Determine the genotype and phenotype ratios resulting from crosses between the following:
 - a) homozygous black x white
 - b) two heterozygous blacks
 - c) heterozygous black x white

2. Suppose in space there are creatures in which purple eyes (P) are dominant to yellow eyes (p). Two purple eyed creatures mate and have 6 children. Four have purple eyes and two have yellow eyes. What genotype would the parents have to be in order to produce these children? Do a Punnett square to prove your answer.

3. In fruit flies, long wings (L) is dominant to short wings (l). Determine the phenotypes and genotype possibilities resulting from crosses between the following:
 - a) homozygous long x homozygous short
 - b) homozygous long x heterozygous long
 - c) heterozygous long x homozygous short
 - d) two heterozygous long

4. Steve has blue eyes. Steve's parents were both brown eyed. He marries a woman, Kate, who is brown eyed. Kate's parents were: mother blue eyed and father brown eyed. Steve and Kate have a child (Joseph) who is blue eyed. Below is a chart of Joseph's family tree. Fill in the possible alleles (i.e. genotypes) for each individual. (Note: Brown is dominant to blue.)



Could this newly married couple ever have children with brown eyes? Explain.