Name:_____ Period: _____ Date: _____

Heterozygous vs. Homozygous

Genes (two letters)   **Opposite (Tt)**   **Same (TT, tt)**
1. For each genotype below, indicate whether it is a heterozygous (He) or homozygous (Ho).

TT _____   Bb_____   DD_____   Ff_____   tt_____   dd _____

Dd_____   ff_____   Tt_____   bb_____   BB_____   FF_____

Single letter   **Lower case letter (t)**
2. Write the allele that is recessive in the following. If there is no recessive allele, write **NONE**.

Bb_____   BB_____   bb_____   RR_____

Rr _____   tt_____   PP_____   Kk _____

                                                                       Capital letter (T)
3. Write the allele that is dominant in the following. If there is no dominant allele, write **NONE**.

SS_____   Mm_____   mm_____   cc _____

Ff_____   KK_____   Yy_____   yy _____

Physical looks
4. Determine the phenotype for each genotype using the information provided.

   a. Purple flowers are dominant to white flowers.

   Pp_____   PP_____ pp_____

   b. Brown Eyes are dominant to blue eyes.
   BB_____   bb_____ Bb_____

   c. Freckles are a dominant trait.
   ff_____   Ff_____ FF_____

   d. Farsightedness is a dominant trait to normal vision.
   SS_____   Ss_____ ss_____

5. For each phenotype, give the genotypes that are possible.

   a. Dimples (D) are dominant to no dimples (d).
   Dimples = _____   No Dimples = _____

   b. Unattached earlobes (E) are dominant to attached earlobes (e).
   Unattached Earlobes = _____   Attached Earlobes = _____

   c.   Normal Vision (V) is dominant to color blindness (v).
   Normal Vision = _____   Color Blindness = _____

      d.   A widow's peak (W) is dominant to a normal hairline (w).

         Widow's Peak = _____   Normal Hairline = _____

6. Write the different genotypes for the following scenarios.

      a. Having hair on your fingers (H) is a dominant trait to not having hair on your fingers (h).

         Homozygous with hair on fingers_____

         Homozygous without hair on fingers_____

         Heterozygous with hair on fingers_____

      b. A cleft chin (C) is dominant to a smooth chin (c).

         Homozygous with a smooth chin _____

         Heterozygous with a Cleft Chin_____

         Homozygous with a cleft chin_____

7. Fill in the Blank: In the spaces at the left, write the term that best fits the definition. Use the following choices.

Incomplete Dominance	Codominance	Heterozygous	Phenotype	Genotype	Dominant
Homozygous	Recessive	46	23	2	4

a) _____ The type of inheritance in which the heterozygote shows a phenotype that is a mixture, or intermediate, of the two.

b) _____ A trait that disappears or is masked by another form of the trait

c) _____ The number of cells that are produced when one cell goes through meiosis.

d) _____ The physical expression of a trait

e) _____ An organism that has a genotype Tt is called _____.

f) _____ The type of inheritance in which the heterozygous organism expresses BOTH phenotypes equally.

g) _____ The number of cells that are produced if one cell goes through mitosis.

h) _____ An organism that has two alleles that are both the same for a trait (ex. TT or tt)

i)_____ Body cells have _____ chromosomes.

j)_____ Sex cells have _____ chromosomes.

k) _____ Refers to an organism's genetic makeup

l)_____ A trait that covers up, or dominates another form of that trait