Genetics Review

N	1. Dominant	A. An organism having a pair of identical alleles for a gene (PP or pp)
D	2. Recessive	B. Genes inherited on the X or Y chromosome
K	3. Allele	C. An organism's traits or physical appearance (purple or white flowers)
A	4. Homozygous	D. Gets masked or dominated by another factor (trait)
O	5. Heterozygous	E. Chart used to predict the probability that certain traits will be inherited in the offspring
C	6. Phenotype	F. Two or more genes influence the expression of a single phenotypic character.
L	7. Genotype	G. The F_1 hybrids have an appearance somewhere in between the phenotypes of the two parental varieties (blending of traits)
E	8. Punnett Square	H. Genes that exist in populations in more than two allelic forms
M	9. Complete dominance	I. A family history that shows how a trait is inherited over several generations
G	10. Incomplete dominance	J. Both alleles for a gene are expressed in the offspring
J	11. Co-dominance	K. Different versions of a trait
B	12. Sex-linked traits	L. An organism's genetic makeup (PP, pp, or Pp)
H	13. Multiple Alleles	M. One allele hides the expression of another allele
F	14. Polygenic Inheritance	N. Masks or dominates another factor (trait)
I	15. Pedigree Analysis	O. An organism having two different alleles for a gene (Pp)

Short Answer

1. What was the name of Mendel's **starting generation**, **first offspring generation**, and then **second offspring generation**?

   P, F1, F2

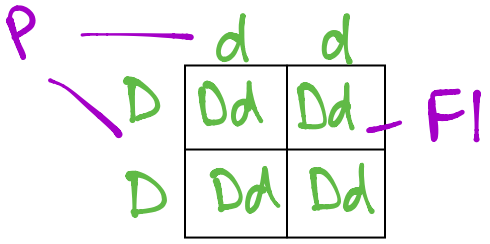
2. What type of pollination did Mendel use to get his first offspring generation? *Self-pollination or Cross-pollination*

3. Which of Mendel's laws states that during formation of gametes (sex cells), the two alleles for a trait separate? *Law of segregation or Law of independent assortment*

4. Using the following traits to complete Mendel's monohybrid crosses, then **label the generations on the Punnett Squares.**

D = purple flower
d = white flower

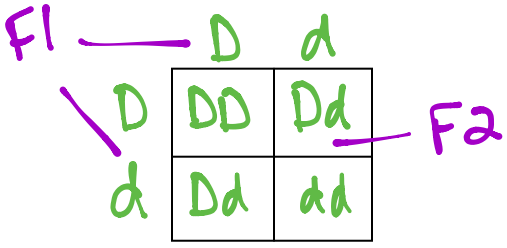
a. homozygous dominant parent crossed with a homozygous recessive parent



Genotype: Dd 100%

Phenotype: Purple 100%

b. heterozygous parent crossed with a heterozygous parent



Genotype: DD 25% Dd 50% dd 25%

Phenotype: Purple 75% White 25%

5. Cross a heterozygous parent for both traits with a heterozygous parent for both traits. Use B= brown eyes, b= blue eyes, D= dimples, d= no dimples. Determine the phenotype ratios for this cross.

BbDd × BbDd

Brown / Dimples 9/16

Brown / No dimples 3/16

Blue / Dimples 3/16

Blue / No dimples 1/16

6. Solve the following Multiple Allele blood type problems
   a. Cross AB with BO. Show the genotype and phenotype ratios.

	B	O
A	AB	AO
B	BB	BO

G: AB 25%, AO 25%, BB 25%, BO 25%

P: AB 25%, A 25%, B 50%

   b. Cross AO and BO: Show the genotype and phenotype ratios.

	B	O
A	AB	AO
O	BO	OO

G: AB 25%, AO 25%, BO 25%, OO 25%

P: AB 25%, A 25%, B 25%, O 25%

   c. Cross OO and AB: Show the genotype and phenotype ratios.

	A	B
O	AO	BO
O	AO	BO

G: AO 50%, BO 50%

P: A 50%, B 50%

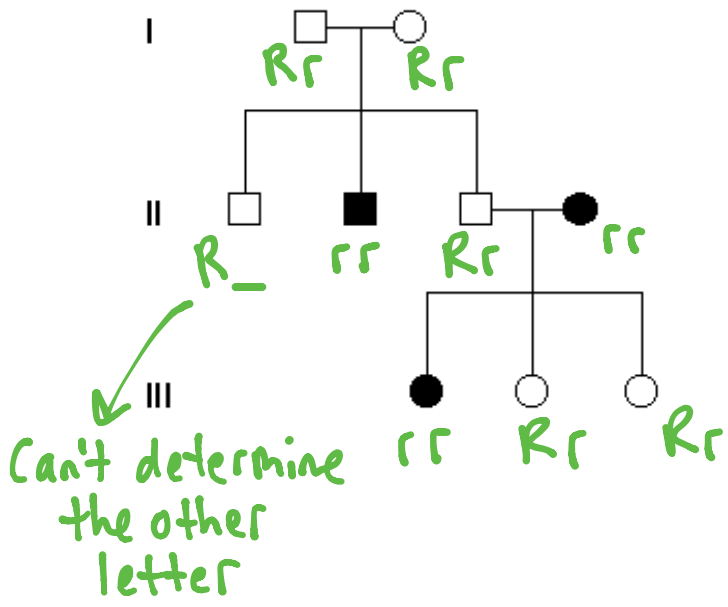
   d. If a son has blood type O and his mother has blood type A (with a genotype of AO, what are the only genotypes and phenotypes the father can have.

	A	
O		OO

Father: AO Type A, BO Type B, OO Type O

7. Determine the **genotypes** for all the people in the pedigree using the **letters R and r**.

a. This is a pedigree of a recessively inherited disorder



b. This is a pedigree of a dominantly inherited disorder