Name _____   **Date** ___/____/____

GENETICS

Gregor Mendel & Inheritance

Based on the tutorials: **Inheritance and Probability** & **Dominance**

I. Gregor Mendel's Work: put the blocks of text in the correct order.

1. Gregor Mendel - most famous for his study - using garden pea plants - is an Austrian monk - of the inheritance of traits

_____
_____

2. produced offspring - with a round seed phenotype - In Mendel's experiment, - the first generation of garden pea plants

_____
_____

3. than the wrinkled seeds - Round seeds appeared more frequently - is the dominant phenotype - indicating that the round seed trait

_____
_____

II. Gregor Mendel's pea experiments: encircle the letter of the correct answer.

1. The plants that were used in the experiment had to be true breeding for a trait. What does *"true breeding"* mean?
   a.   The parents will produce offspring that will carry the same phenotype.
   b.   The offspring will have the same genotype for that trait as that of the parents.
   c.   Both a and b
   d.   None of the above
2. What was evident in the first generation of pea plants in Mendel's experiment?
   a.   They produced round seeds.
   b.   They produced wrinkled seeds.
   c.   Some of them produced round seeds whereas others produced wrinkled seeds.
   d.   They produced no seeds at all.
3. What did Mendel observe in the offspring of the first generation of pea plants?
   a.   A ratio of 3:1, meaning 3 wrinkled seeds for every 1 round seed
   b.   A ratio of 3:1, meaning 3 round seeds for every 1 wrinkled seed
   c.   A ratio of 2:2, meaning 2 wrinkled seeds for every 2 round seeds
   d.   A ratio of 4:0, meaning all produced round seeds
4. Which of these statements correctly depict Mendel's law of dominance?
   a.   The recessive allele will mask the effect of the dominant allele.
   b.   The recessive trait will appear more frequently than the dominant trait.
   c.   In a pair of alleles, one of them will be expressed over the other. It is described as "dominant".
   d.   The dominant allele will be expressed only if the recessive allele is absent.

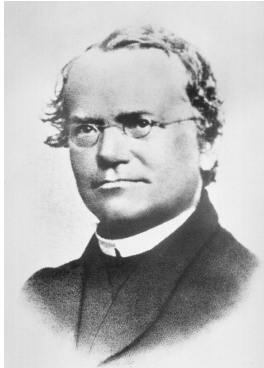**Biology** Online

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III. Gregor Mendel's scientific approach: Arrange the flowchart according to the correct order that led to the conceptualization of the Mendelian Laws. Write 1st, 2nd, 3rd, 4th, & 5th.

___ Collected and analyzed the data to formulate conclusions based on the inheritance patterns he observed

⬇

___ Identified the 7 different traits of pea plants

⬇

___ Grew true-breeding pea plants and crossed them to produce the first filial generation

⬇

___ Crossed the first filial generation to produce the second filial generation

⬇

5th Proposed the Laws for the Inheritance of traits

IV. Punnett Square: Supply the missing alleles in this Punnett Square for a single trait. Use uppercase letters to represent the dominant allele and lowercase letters for the recessive allele.

1.

	b	b
B	Bb	
B		

2.

	T	t
T		
t	Tt	

3.

	A	a
A		
A		Aa

4.

	R	
	RR	
		RR

5.

	EE	Ee
	EE	

6.

		Yy
	YY	Yy

7.

	n	n
n		
n		

8.

	Xx	
		xx