CONCEPT: MENDEL'S LAWS

●Through his research with pea plants, Gregor Mendel proposed 2 fundamental laws of genetics:

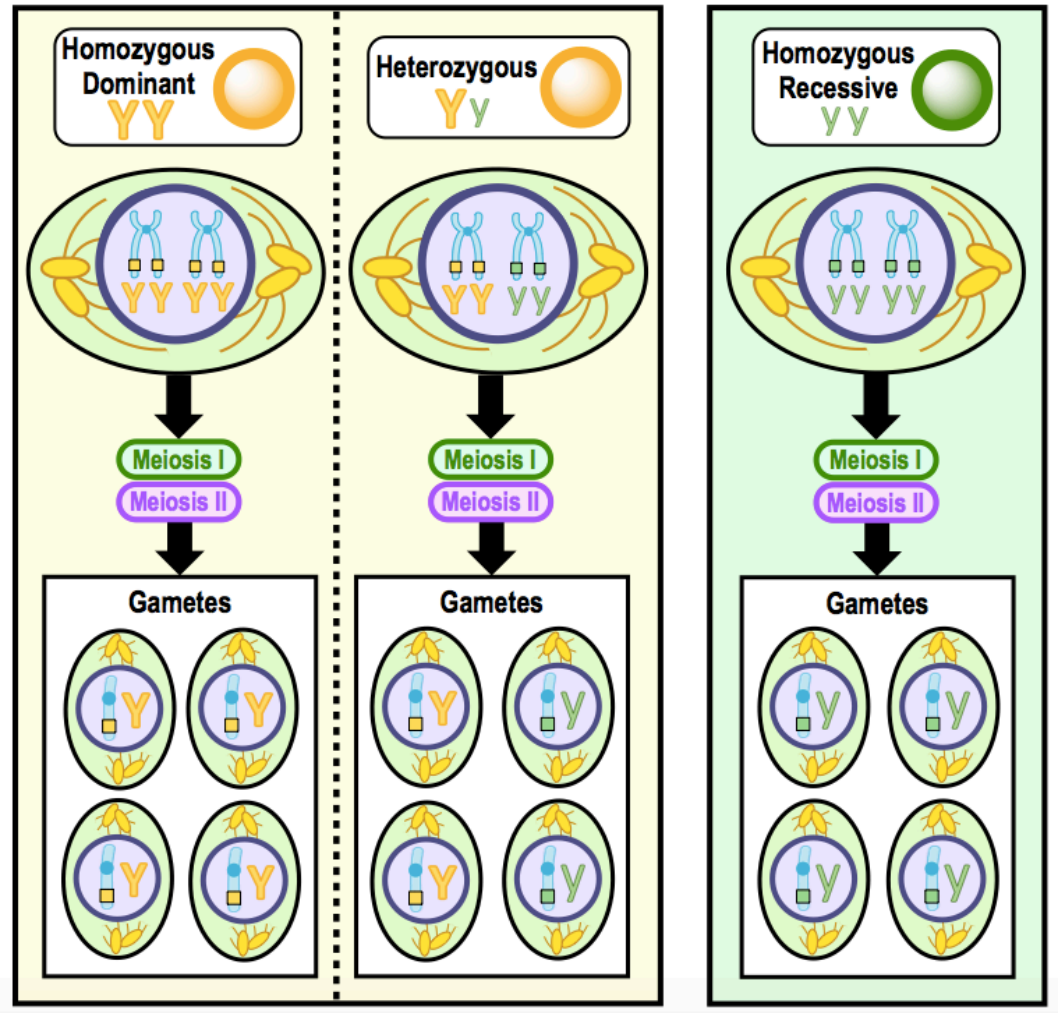
1) Law of _____ & 2) Law of _____ *Assortment*

1) Law of Segregation

●During gamete formation, 2 alleles of the same gene _____ & end up in _____ *gametes*.

□ In other words, *gametes* are _____ & only receive _____ copy of a gene/allele.

EXAMPLE: Law of Segregation.



PRACTICE: According to Mendel's Law of Segregation, which of the following is a true statement?

a) Each gamete receives both of the parent's alleles for each gene.

b) Dominant alleles segregate into gametes more frequently than recessive alleles.

c) Alleles segregate into different gametes with equal frequency.

d) Recessive alleles segregate into gametes more frequently than dominant alleles.

CONCEPT: MENDEL'S LAWS

PRACTICE: Mendel's observation of the segregation of alleles in gamete formation has its basis in which of the following phases of cell division?

a) Prophase I of meiosis.
b) Metaphase II of meiosis.
c) Anaphase II of meiosis.
d) Anaphase I of meiosis.

2) Law of Independent Assortment

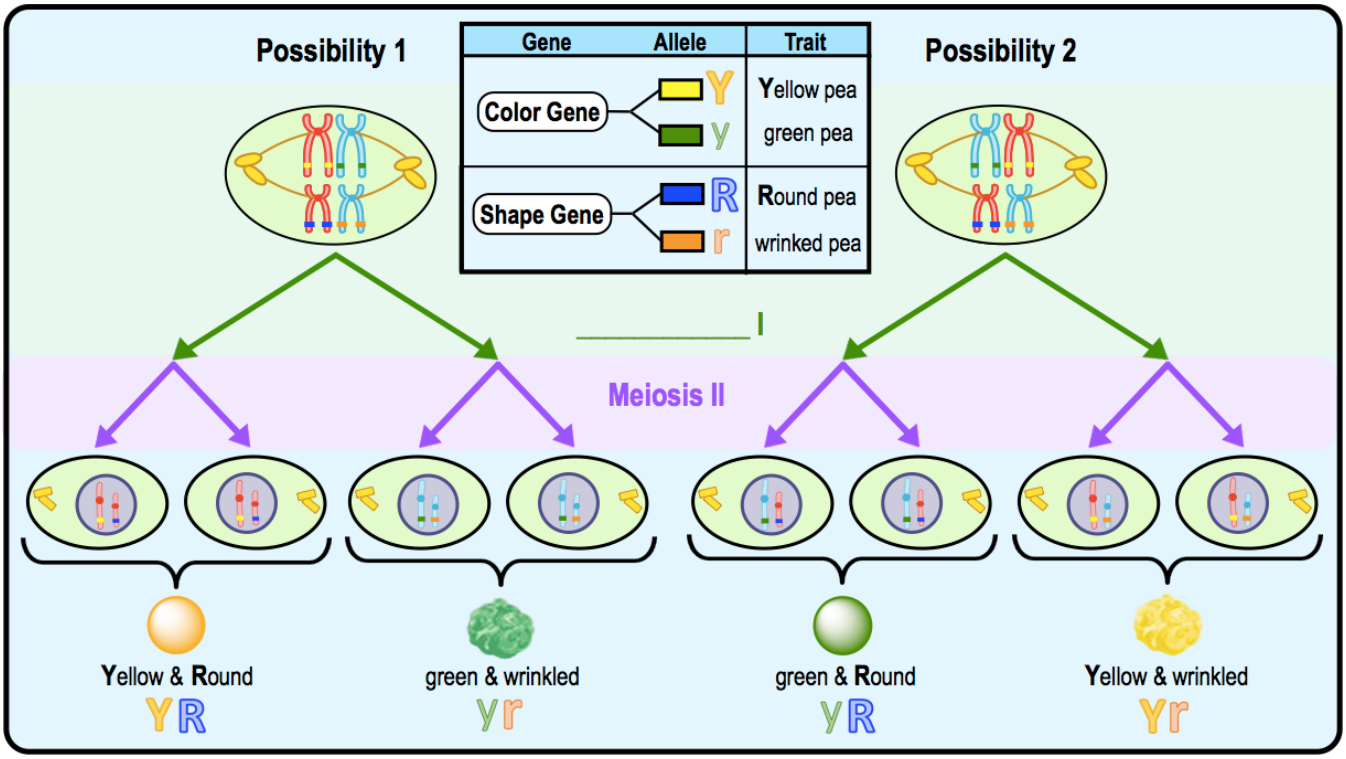
●*Recall: Independent assortment*, homologous chromosomes *randomly* align on the metaphase I plate during meiosis I.

●**Law of Independent Assortment**: allele segregation of one gene does _____ affect the segregation of another gene.

□ Allows for gametes with _____ *combinations* of alleles from different genes.

□ Mendel monitored the inheritance of *multiple* genes to make this discovery using _____ *crosses*.

EXAMPLE: Independent Assortment During Metaphase I of Meiosis I.



PRACTICE: Mendel's law of independent assortment has its basis in which of the following events of meiosis I?

a) Synapsis of homologous chromosomes.
b) Crossing over of homologous pairs of chromosomes.
c) Alignment of pairs of homologous chromosomes along the middle of the cell.
d) The division of cells during cytokinesis.