Mendel's Model

Inheritance: Law of Segregation & Law of Idep Assortment

alleles separate during gamete formation

homologous pair sorts along the equator independent of all other pairs

exception: genes on same chromosome assort together "linked"

alleles: traits or different forms of genes

gene: characters

homozygous: same alleles

heterozygous: different alleles

dominant: always expressed when present

recessive: present but masked by dominant

phenotype: physical characteristics

genotype: genetic make-up

Punnett Square

	P	p
P	PP	Pp
p	Pp	pp

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monohybrid cross
one gene heterozygous

Pp × Pp

	P	p
P	PP	Pp
p	Pp	pp

genotype:

1 PP 25%
2 Pp 50%
1 pp 25%

phenotype:

3 purple 75%
1 white 25%

Parent   PP × pp

P P   p p

Offspring

	P
p	Pp

genotype:
100% Pp
phenotype:
100% purple

dihybrid cross

two genes   heterozygous

$Yy\ Rr \times Yy\ Rr$

Pea color
Y: yellow
y: green

Pea shape
R: round
r: wrinkled

linked   **not linked**

Y {   } y   Y   y
R {   } r   R   r

YR
yr
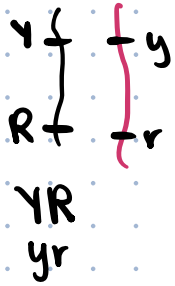
$Yy\ Rr \rightarrow$ YR, Yr, yR, yr

	YR	yr
YR	YYRR	YyRr
yr	YyRr	yyrr

3 yellow round

1 green wrinkled

	YR	Yr	yR	yr
YR	YYRR	YYRr	YyRR	YyRr
Yr	YYRr	YYrr	YyRr	Yyrr
yR	YyRR	YyRr	yyRR	yyRr
yr	YyRr	Yyrr	yyRr	yyrr

9 yellow round

3 yellow wrinkled

3 green round

1 green wrinkled