

the cell cycle

vocabulary

genome: all genetic info in a cell
chromatin: DNA, RNA, proteins condensed
chromosome: one DNA molecule
karyotype: ordered display of chromosomes
ploidy: # copies of chromosome in genome
diploid: two copies ($2n$) XX
haploid: one copy (n) X
centrosome: microtubule organizing center

chromatid: unduplicated chromosome

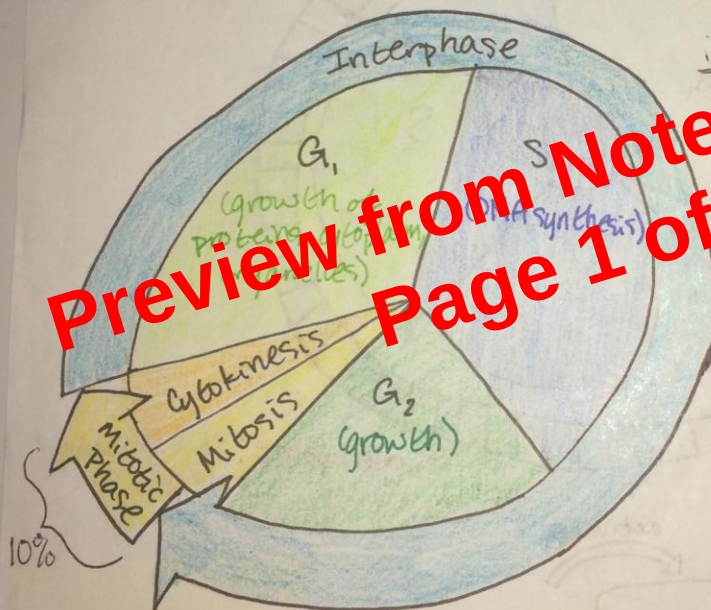
sister chromatids: duplicated

centromere: joins chromatids

kinetochores: where microtubules attach

genes: sequence of DNA that codes for protein/nucleic acid

locus: gene's physical location



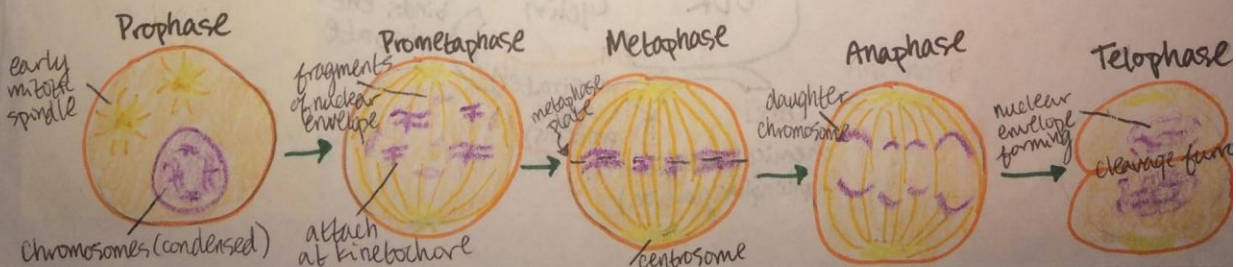
interphase: most of cell's life, normal metabolism & growth

mitotic phase: cell division

mitosis occurs for:

- asexual reproduction
- tissue repair/renewal
- development and growth

create 2 genetically identical daughter cells

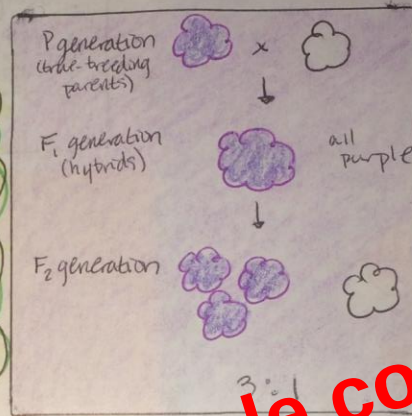


Mendel and the gene idea

why peas?

good model organism

- easy to keep & breed in captivity
- short generation time
- well studied
- many varieties (traits)
- large # offspring
- mating can be controlled



Mendel used:

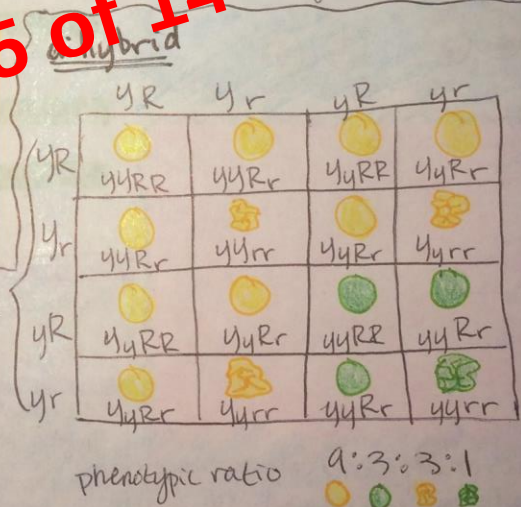
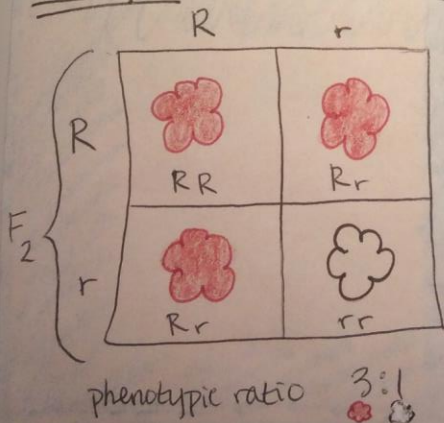
- careful design
- precise records
- large amount of data
- statistical analysis of results

crossed "true-breeding" varieties

flower color
seed color
seed shape
pod shape
pod color
flower position
stem length

dominant heritable factor ("allele") did not disappear but was masked in F₁ generation

monohybrid



led to: Law of Segregation
Law of Independent Assortment