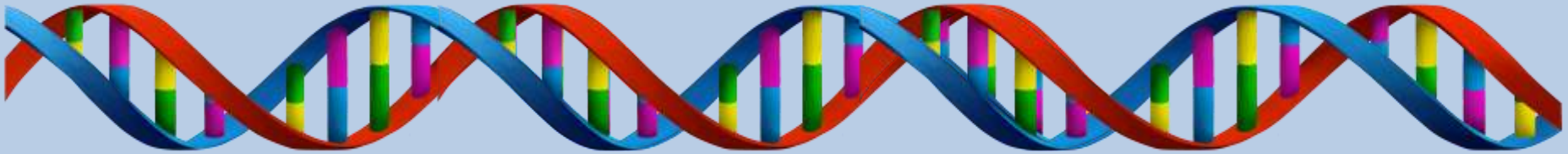
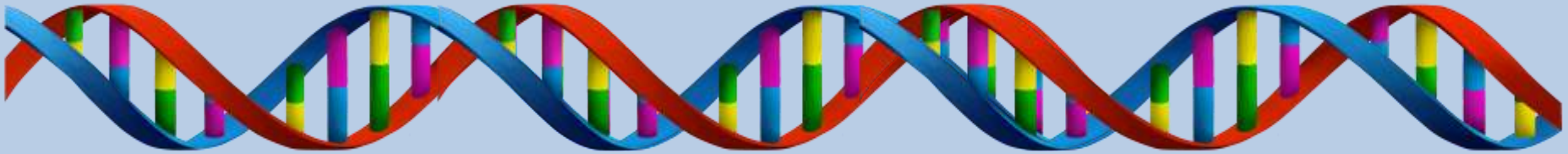


1. How many copies of each chromosome do you have in each of your somatic cells?
2. Where did these copies come from?
3. Are somatic cells diploid or haploid?
4. How many copies are in each gamete?
5. Are gametes diploid or haploid?

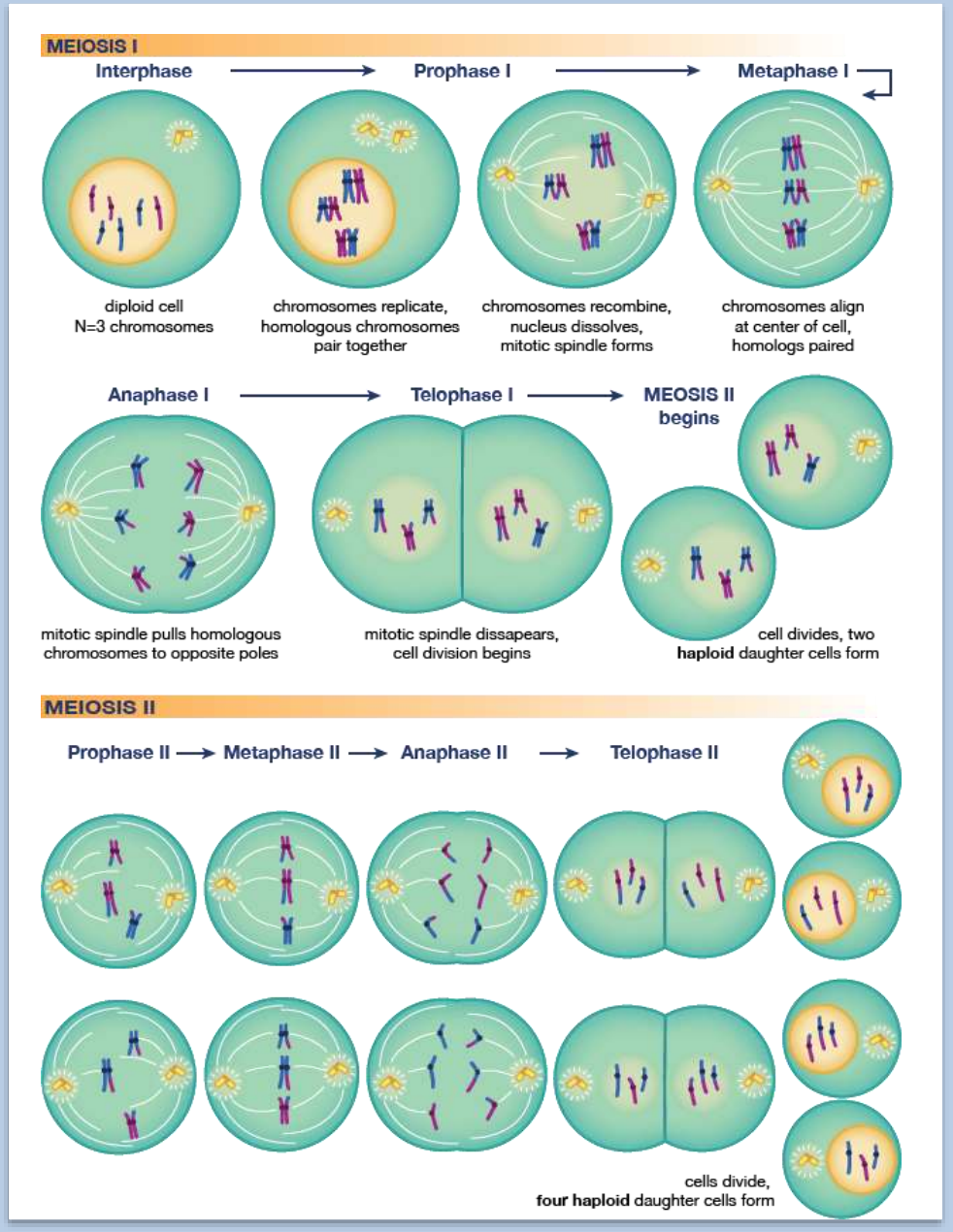


Meiosis

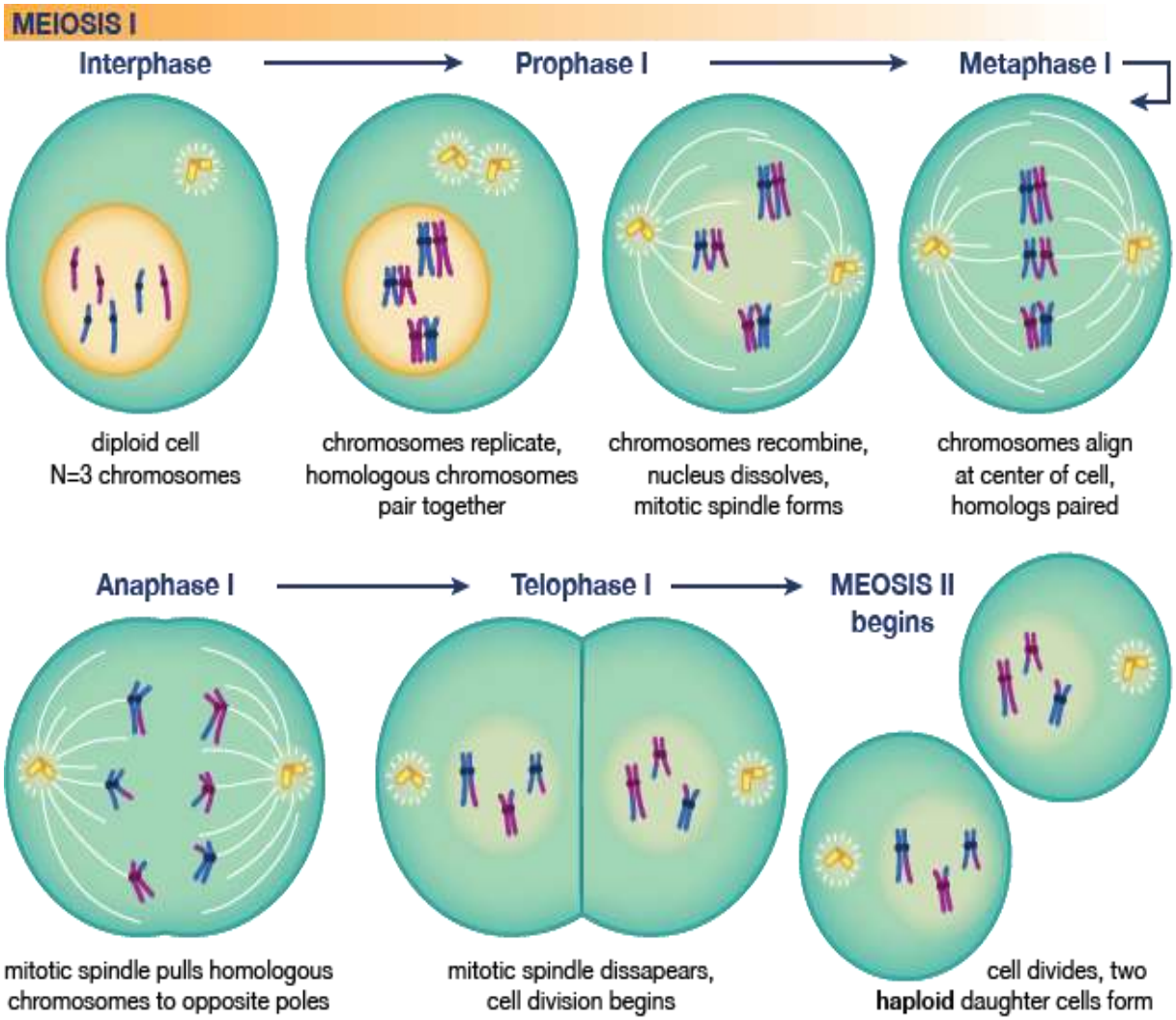
- Open to page 56
- Go over the 8 phases of meiosis with your group

Meiosis vs Mitosis

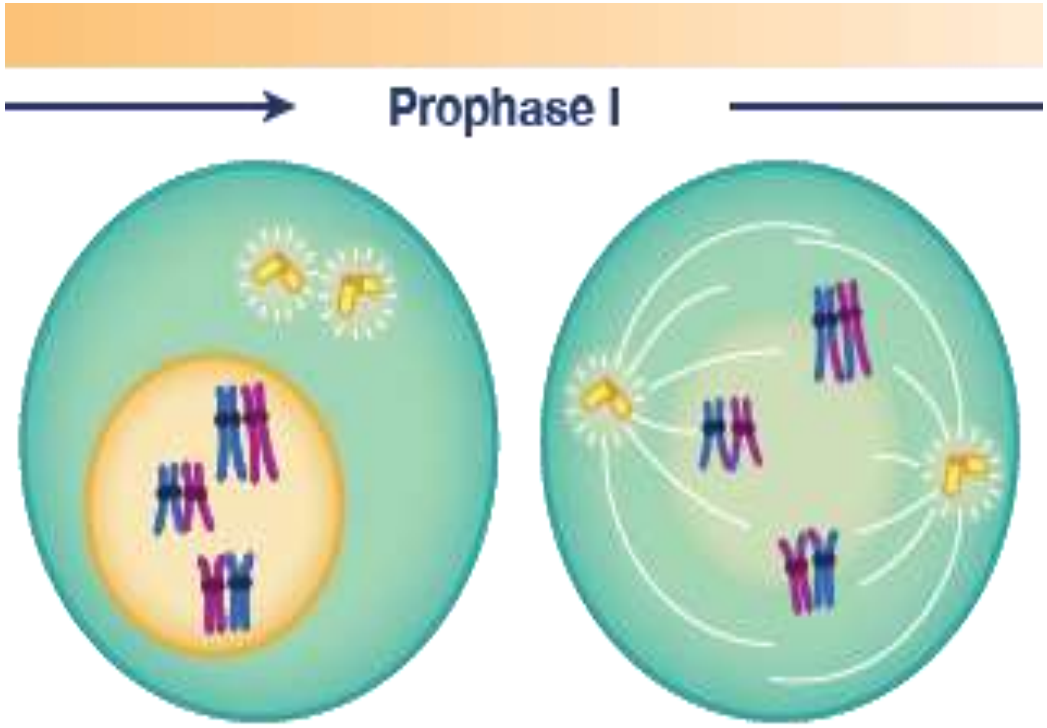
Meiosis


MEIOSIS I
Interphase
Prophase I
Metaphase I
diploid cell
N=3 chromosomes
chromosomes replicate, homologous chromosomes pair together
chromosomes recombine, nucleus dissolves, mitotic spindle forms
chromosomes align at center of cell, homologs paired
Anaphase I
Telophase I
MEOSIS II begins
mitotic spindle pulls homologous chromosomes to opposite poles
mitotic spindle dissapears, cell division begins
cell divides, two haploid daughter cells form
MEIOSIS II
Prophase II
Metaphase II
Anaphase II
Telophase II
cells divide, four haploid daughter cells form

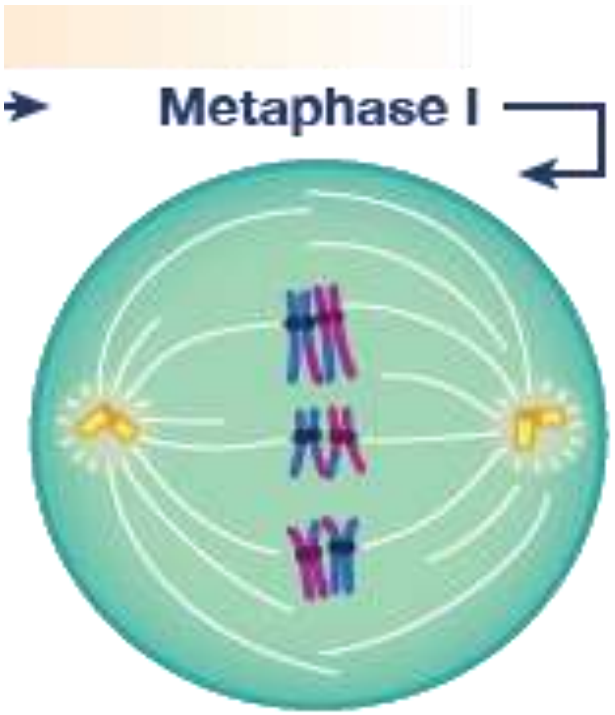
Meiosis I


MEIOSIS I
Interphase
Prophase I
Metaphase I
diploid cell
N=3 chromosomes
chromosomes replicate,
homologous chromosomes
pair together
chromosomes recombine,
nucleus dissolves,
mitotic spindle forms
chromosomes align
at center of cell,
homologs paired
Anaphase I
Telophase I
MEOSIS II
begins
mitotic spindle pulls homologous
chromosomes to opposite poles
mitotic spindle dissapears,
cell division begins
cell divides, two
haploid daughter cells form

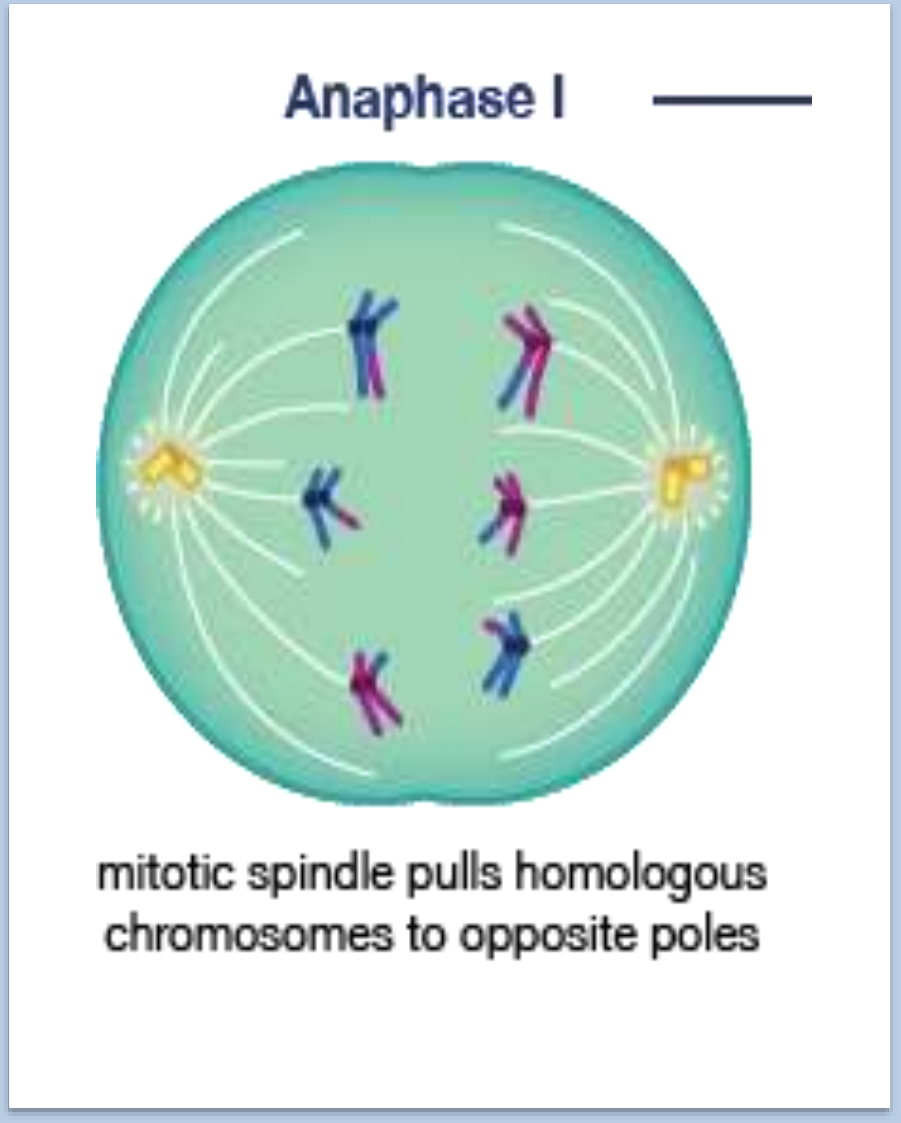
PROPHASE I


Prophase I
chromosomes replicate, homologous chromosomes pair together
chromosomes recombine, nucleus dissolves, mitotic spindle forms

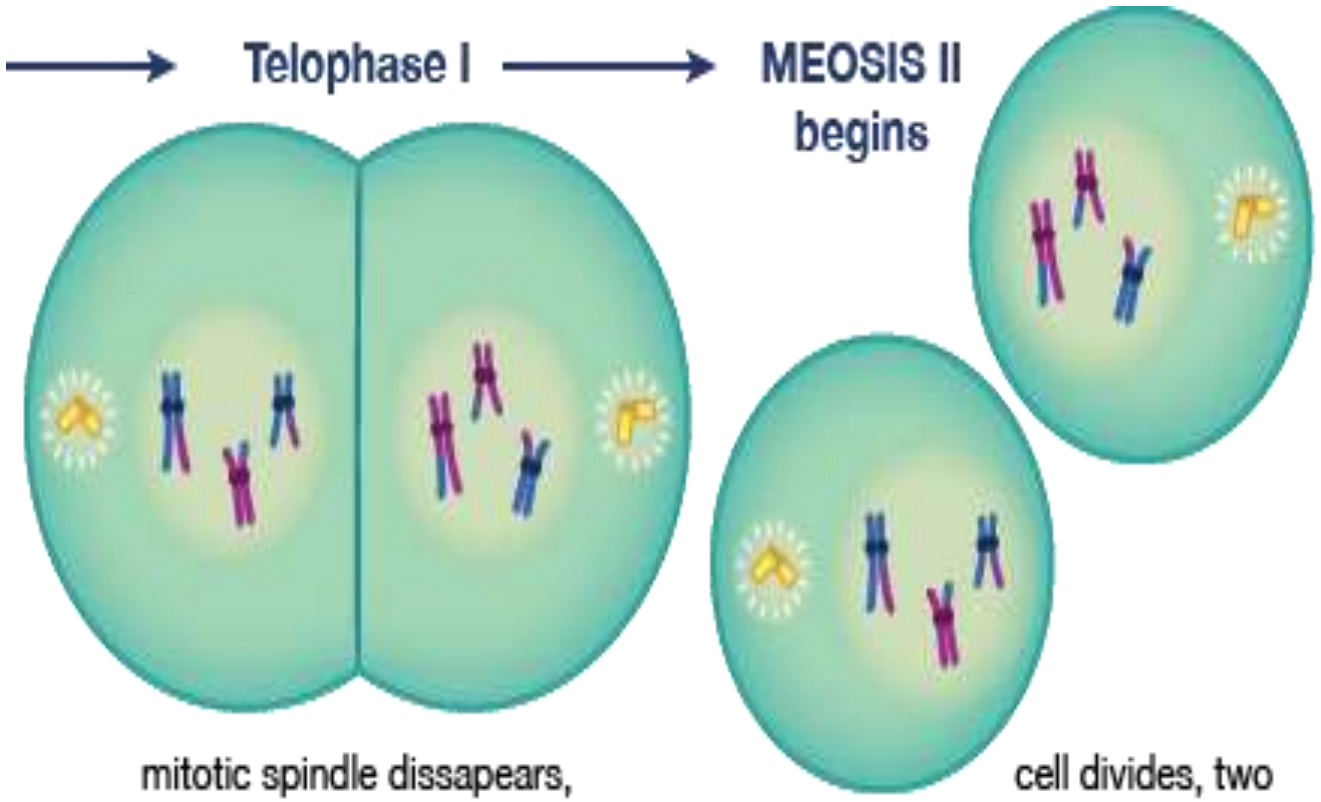
METAPHASE I


Metaphase I
chromosomes align
at center of cell,
homologs paired

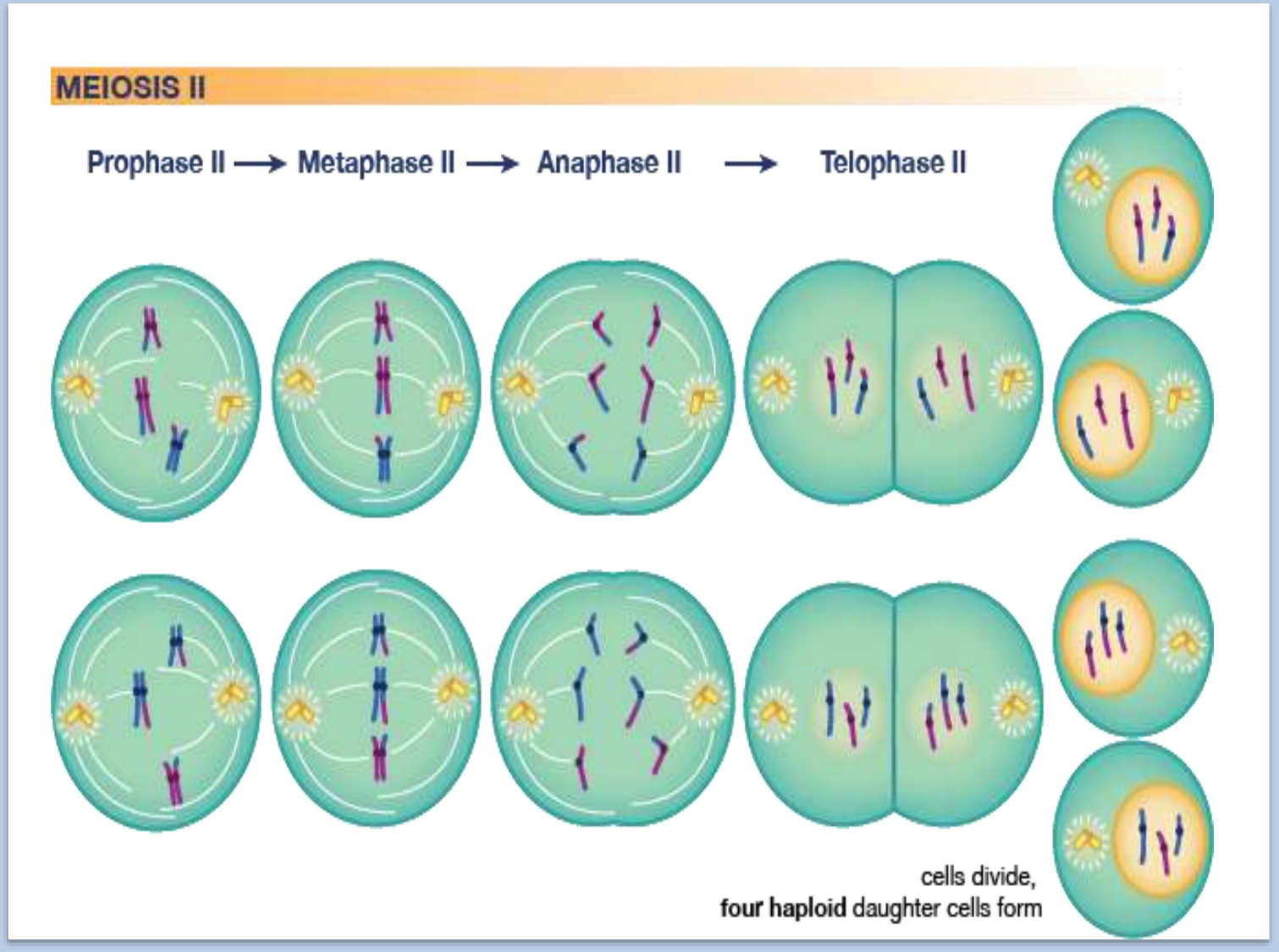
ANAPHASE I


Anaphase I
mitotic spindle pulls homologous chromosomes to opposite poles

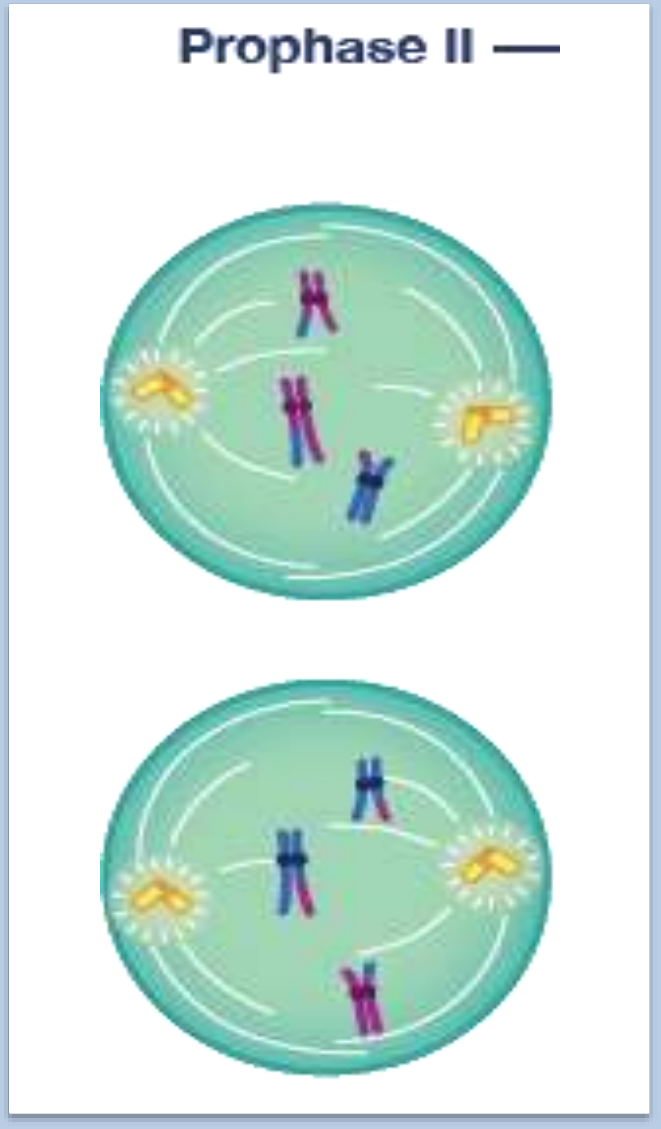
TELOPHASE I


Telophase I
MEOSIS II begins
mitotic spindle dissapears, cell division begins
cell divides, two haploid daughter cells form

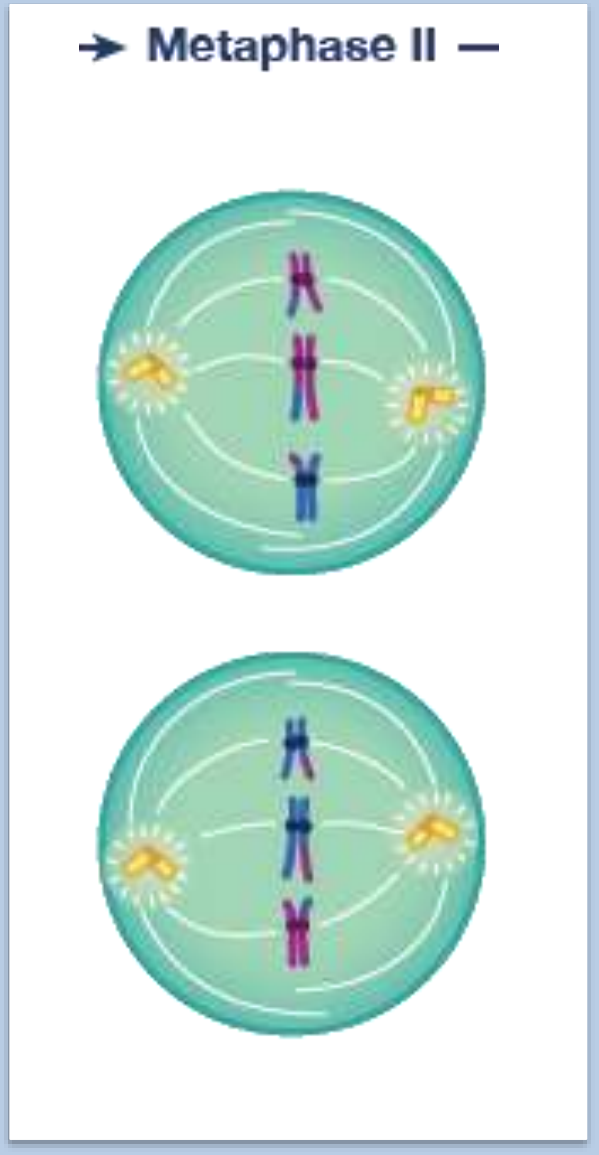
Meiosis II


MEIOSIS II
Prophase II
Metaphase II
Anaphase II
Telophase II
cells divide,
four haploid daughter cells form

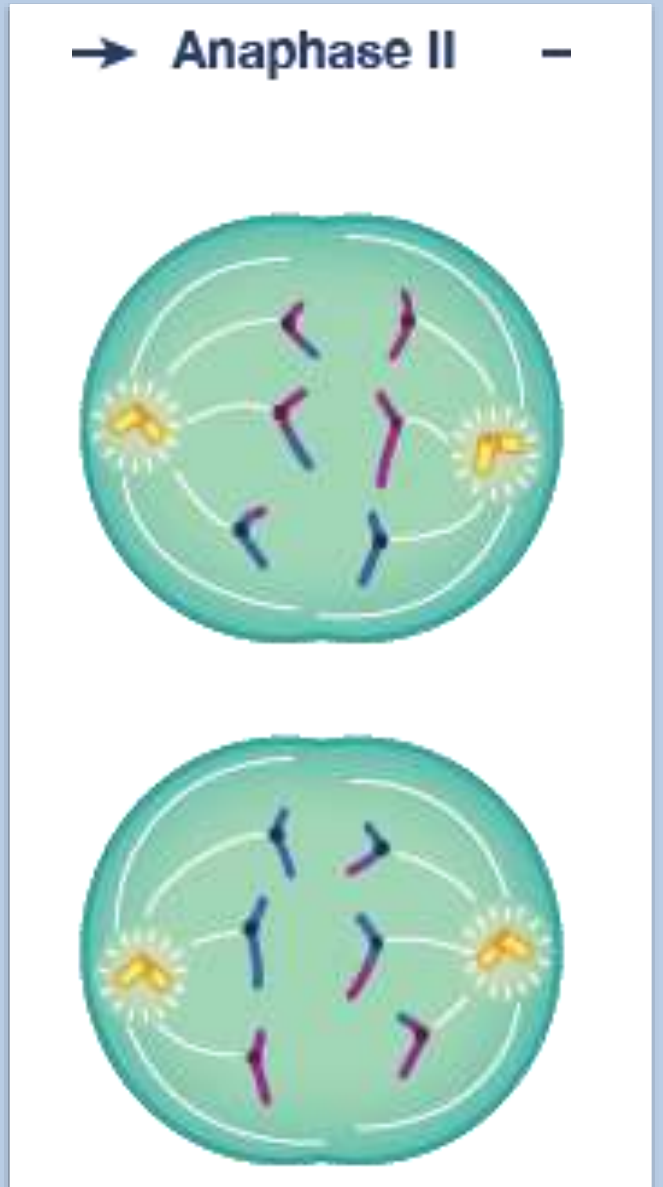
PROPHASE II



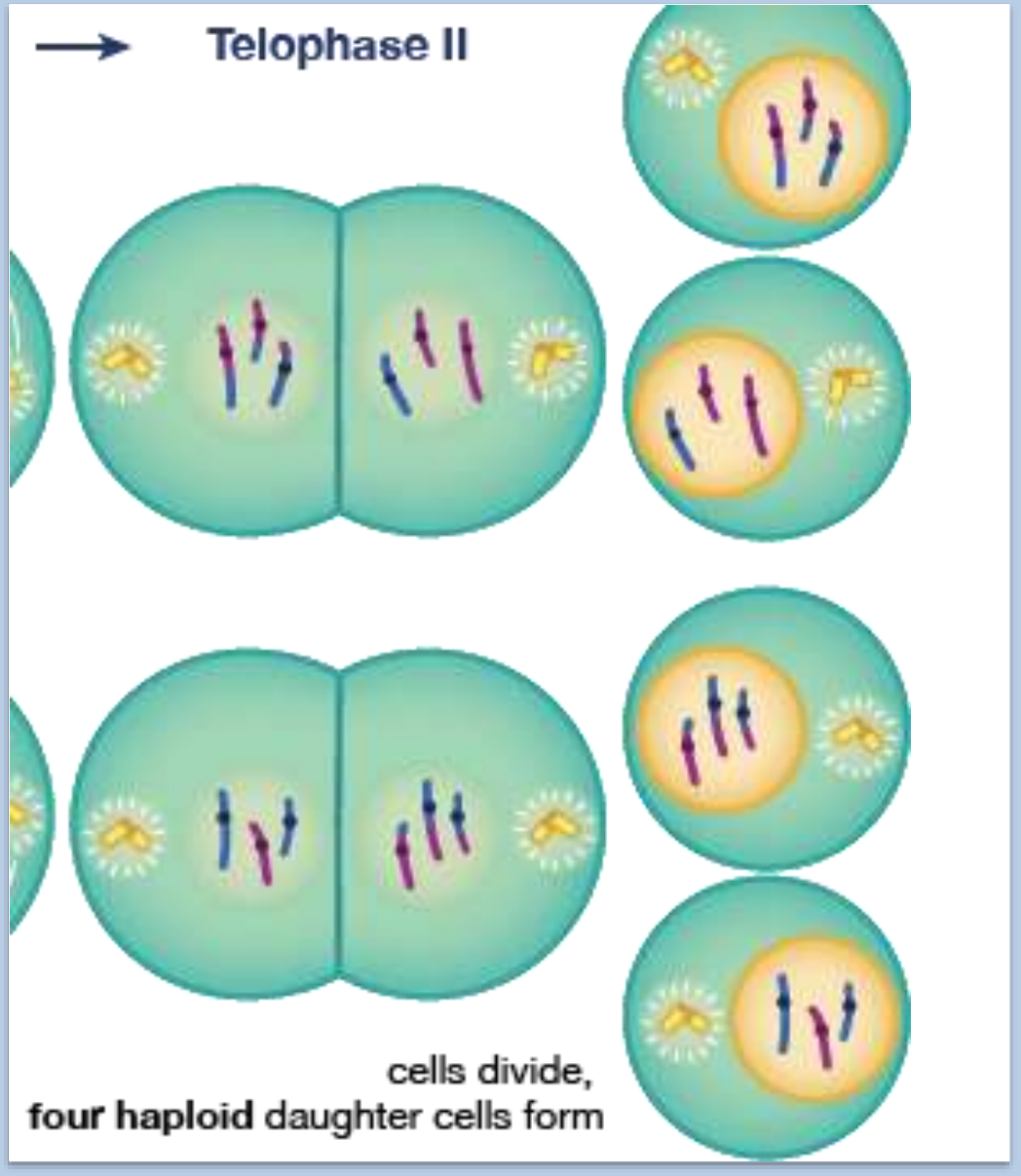
METAPHASE II



ANAPHASE II



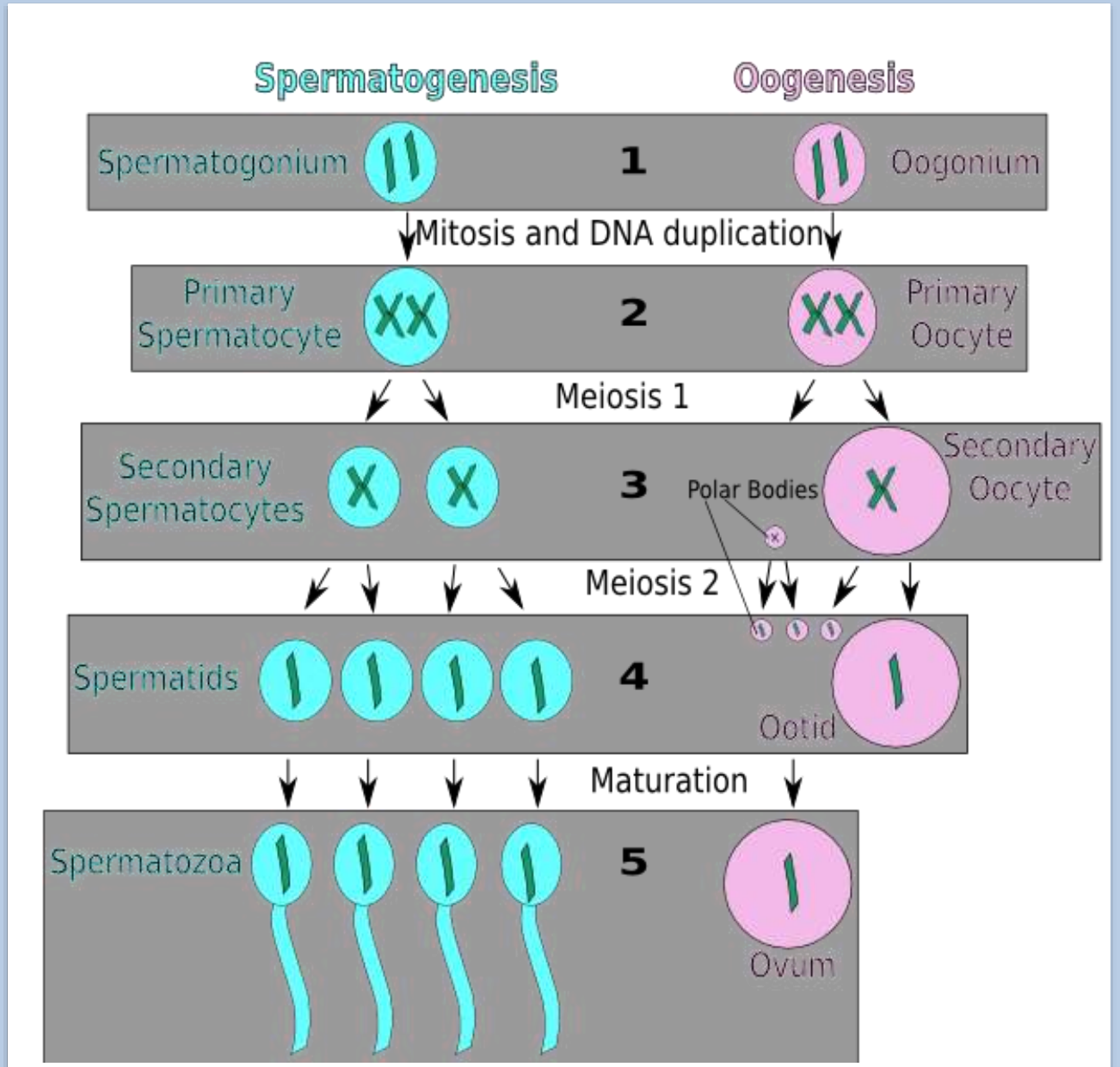
TELOPHASE II



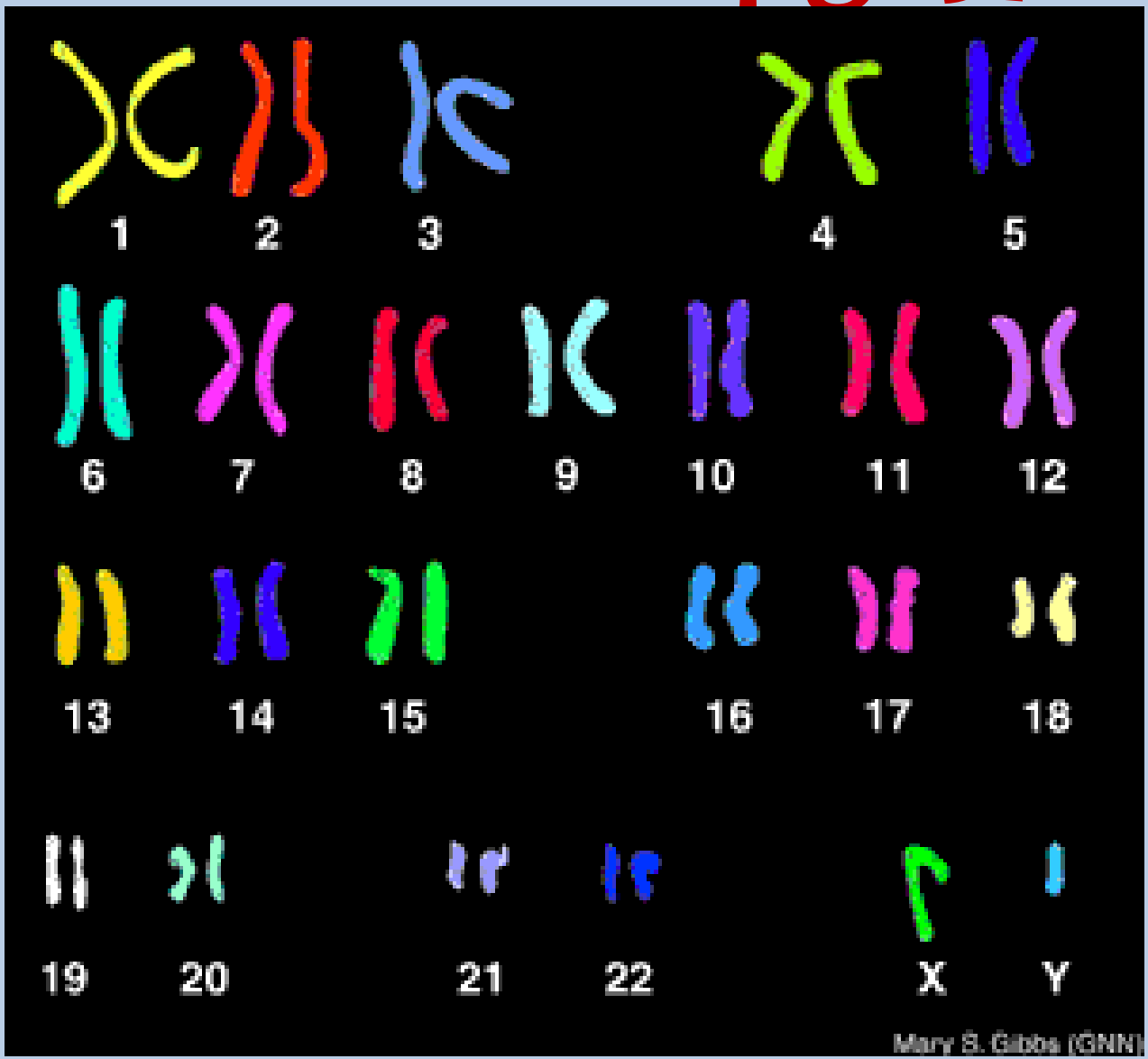
Meiosis vs Mitosis

- Cross Over: https://www.youtube.com/watch?v=P8KfcAsolio
- https://www.youtube.com/watch?v=zrKdz93WlVk

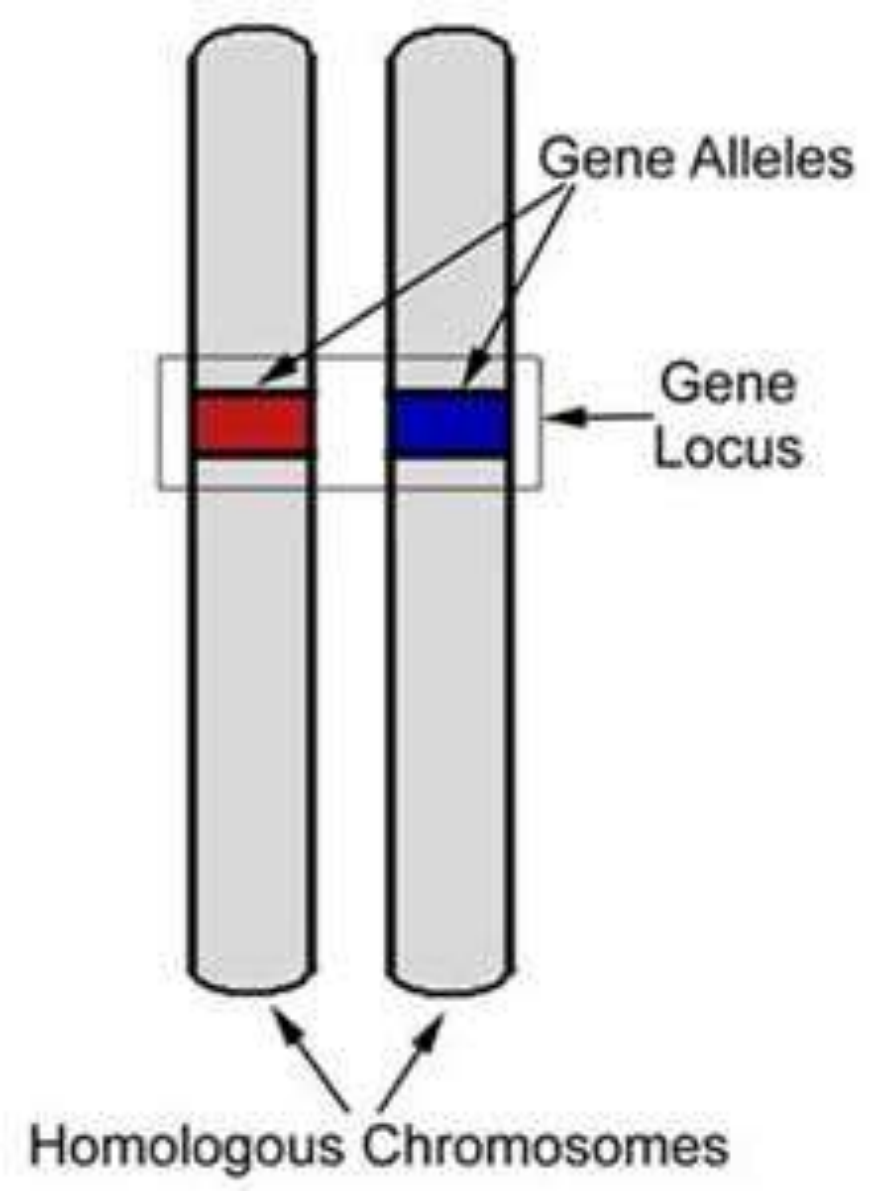
Product of Meiosis



Genetics – pg. 57



Genetics



Genetics

- Complete the Gene Map Questions and tape them on to page 57

Genetics

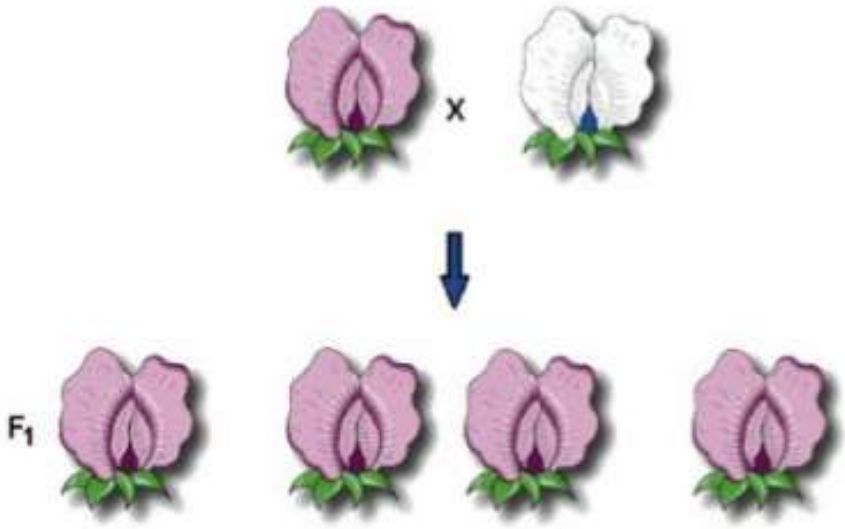
Mendel's Peas

- https://www.youtube.com/watch?v=Mehz7tCxjSE

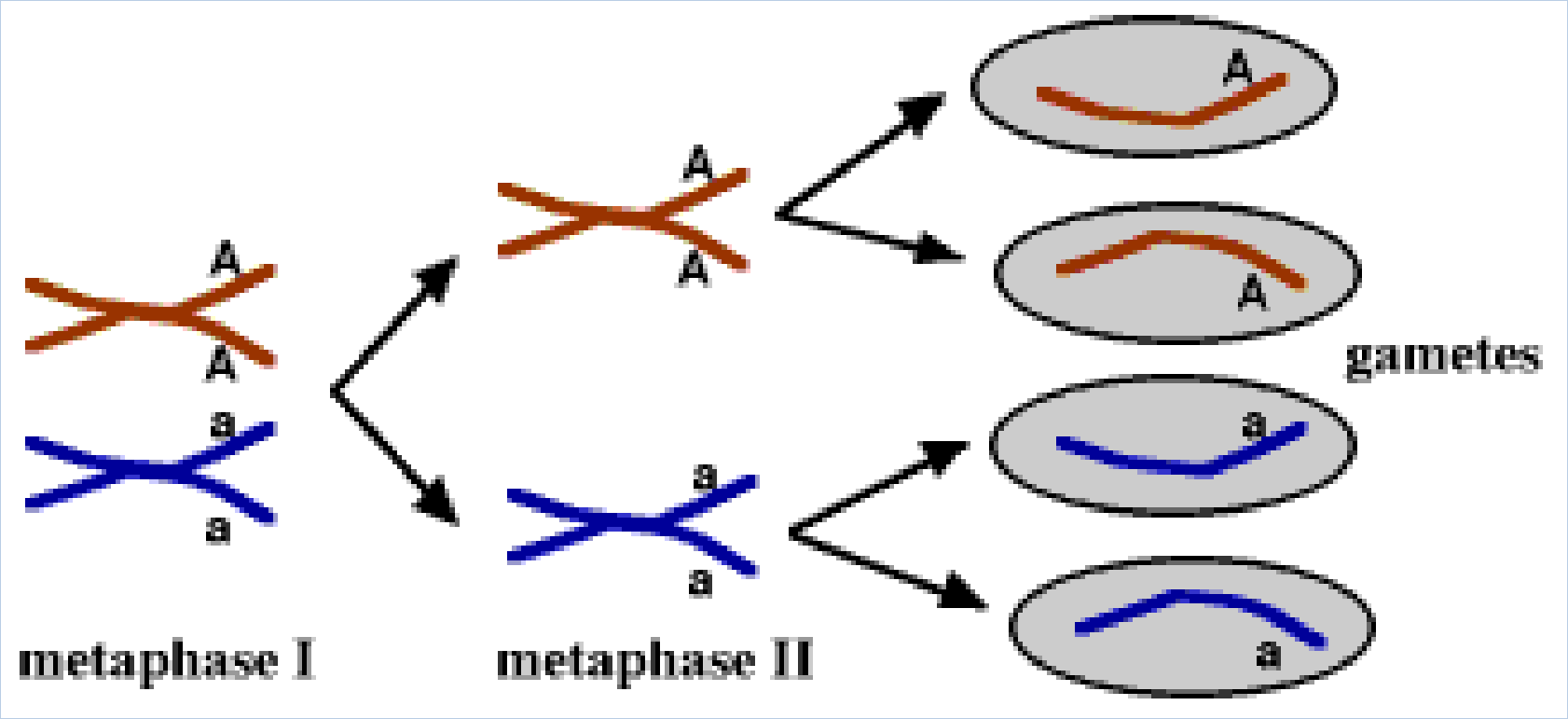
Genetics – Rule/principle of Dominance

Genes and Dominance

The principle of dominance states that some alleles are dominant and others are recessive.



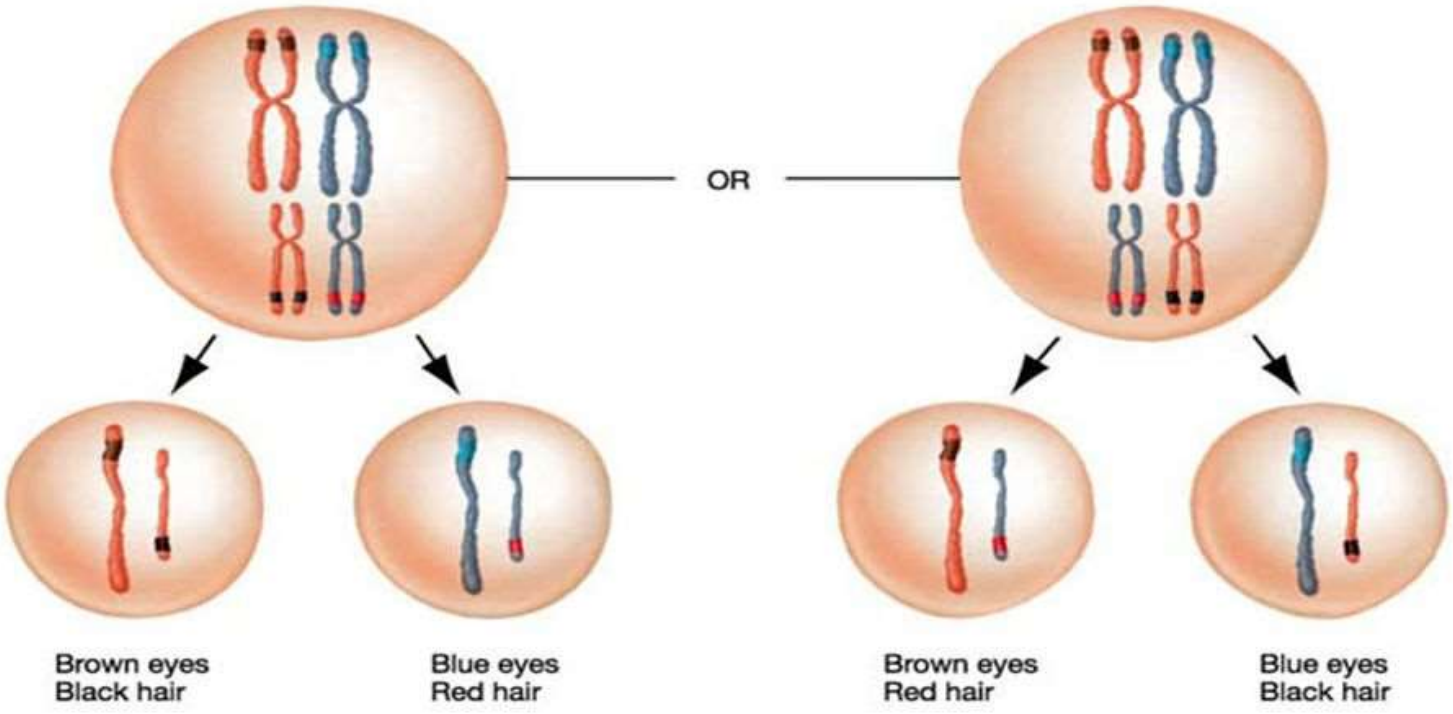
Genetics Law of Segregation



Genetics

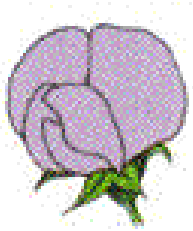
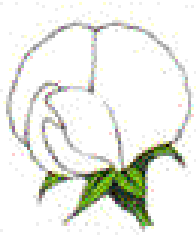
Law of Independent Assortment

During meiosis I, tetrads can line up two different ways before the homologs separate.



Genetics

Genotype and Phenotype

		
Phenotype:	purple flower	white flower
Genotype: (partial)	AA or Aa	aa

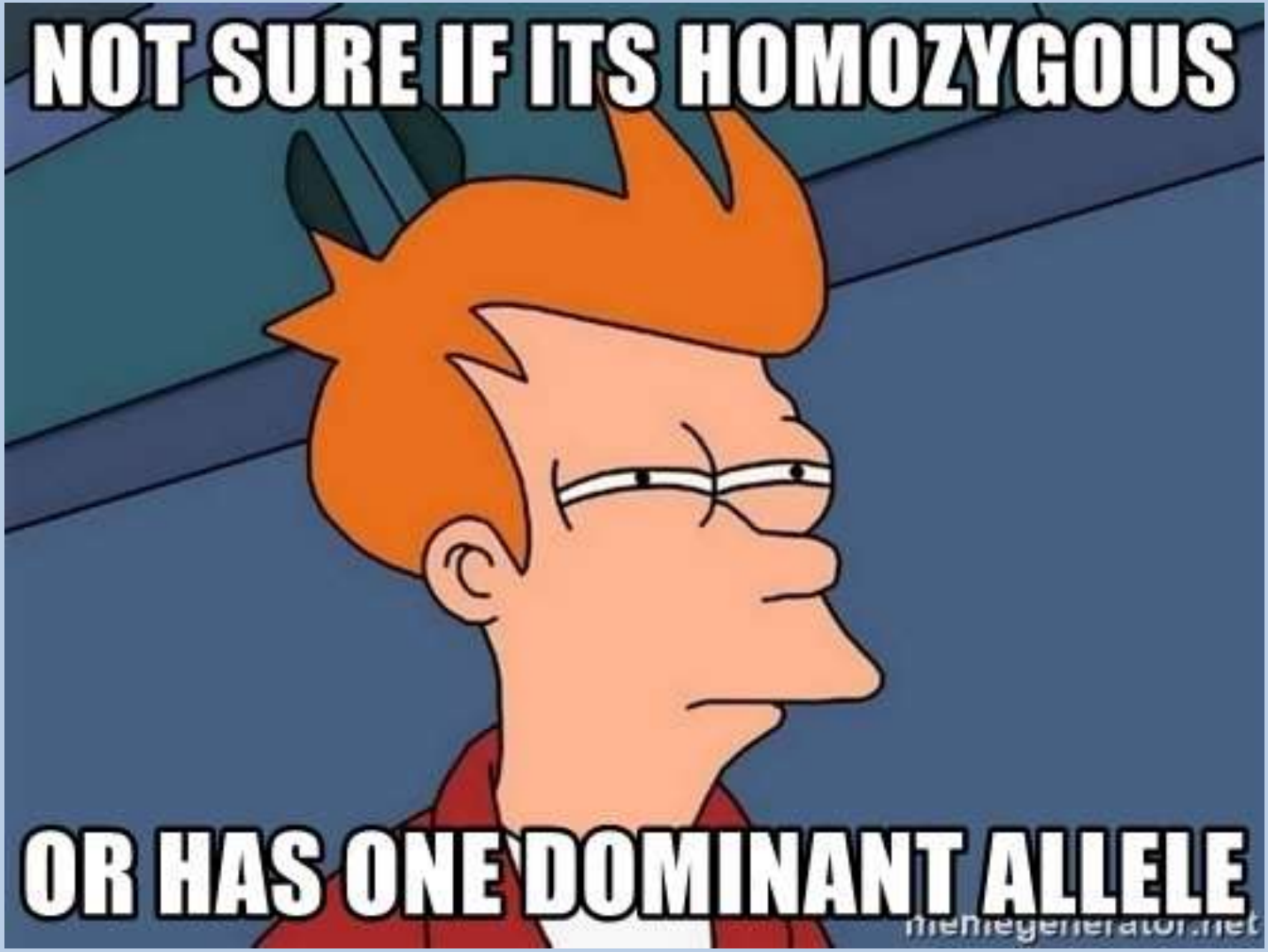
Genetics

Genetics

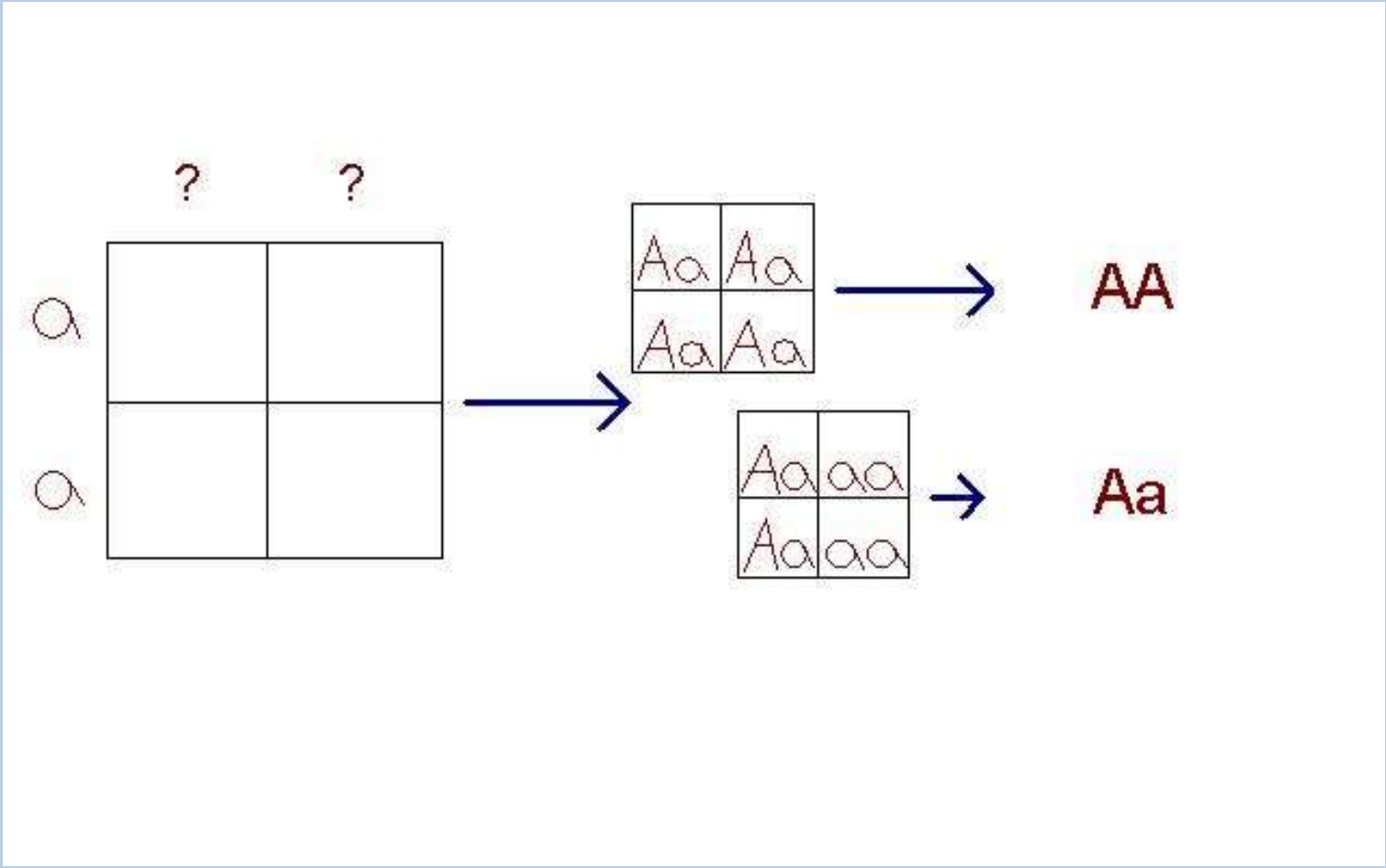
Genetics

Genetics

Genetics – Test Cross



Genetics – Test Cross



Genetics

- Finish the Genetics Background sheet up to “Monohybrid Crosses”
  - If you want to fill in the Punnett squares, go ahead

When Mendel published his findings he had no idea what a gene or chromosome was…

He analyzed the data he had collected and was able to determine that offspring got one “factor” from their mother, and one “factor” from their father.

What “factor” do offspring get from their mother?

What “factor” do offspring get from their mother?

The egg

What “factor” do offspring get from their father?

What “factor” do offspring get from their father?

The sperm

How many copies of each chromosome do humans get?

How many copies of each chromosome do humans get?

2

How many copies of each gene do humans get?

How many copies of each gene do humans get?

2

(1 copy on the chromosome from mom, and 1 copy on the chromosome from dad)

What are different versions of each gene called?

What are different versions of each gene called?

Alleles

How do you denote the different versions of genes?

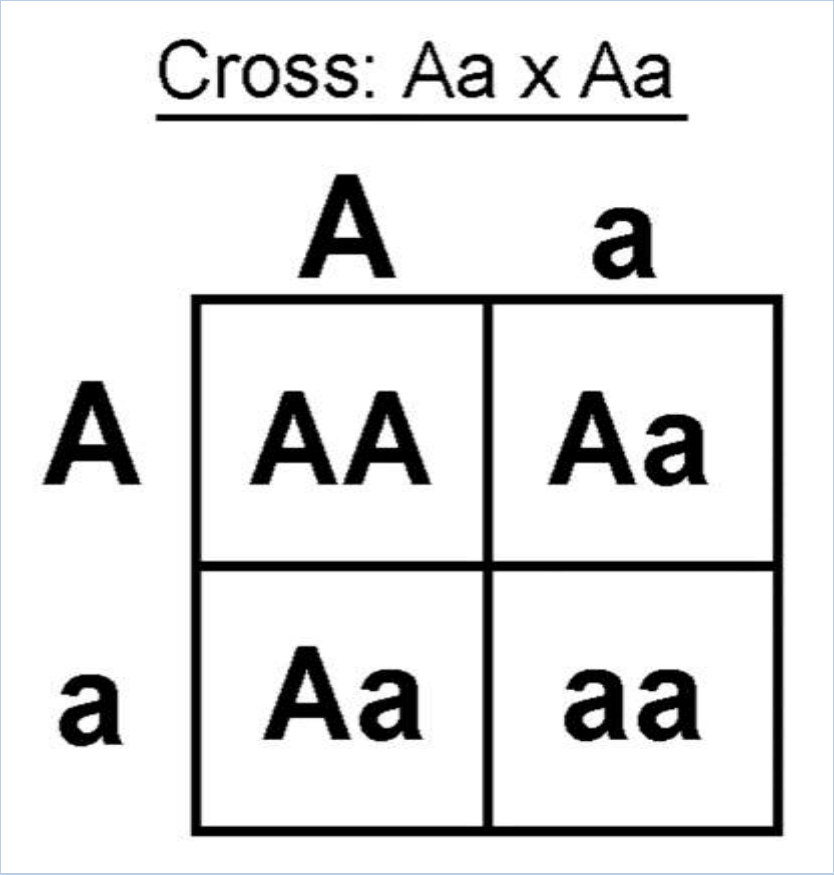
How do you denote the different versions of genes?

By using the same letter, just different cases:

Dominant = Uppercase

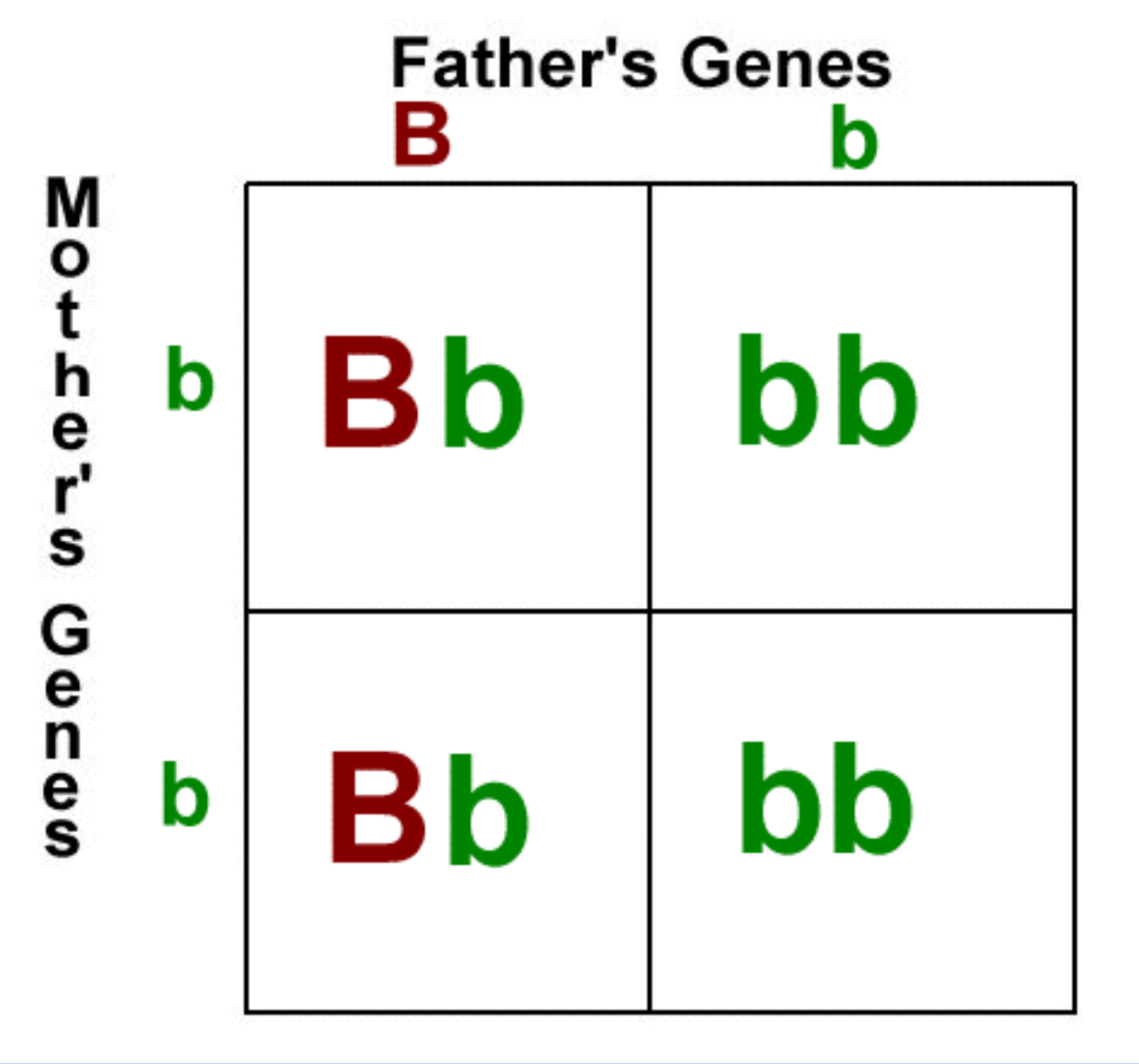
Recessive = Lowercase

Where do the letters in a Punnett square come from?



Where do the letters come from?

The letters on the TOP and SIDE of a Punnett square are the genes of the *PARENTS*


Father's Genes
B
b
Mother's Genes
b
b
Bb
bb
Bb
bb

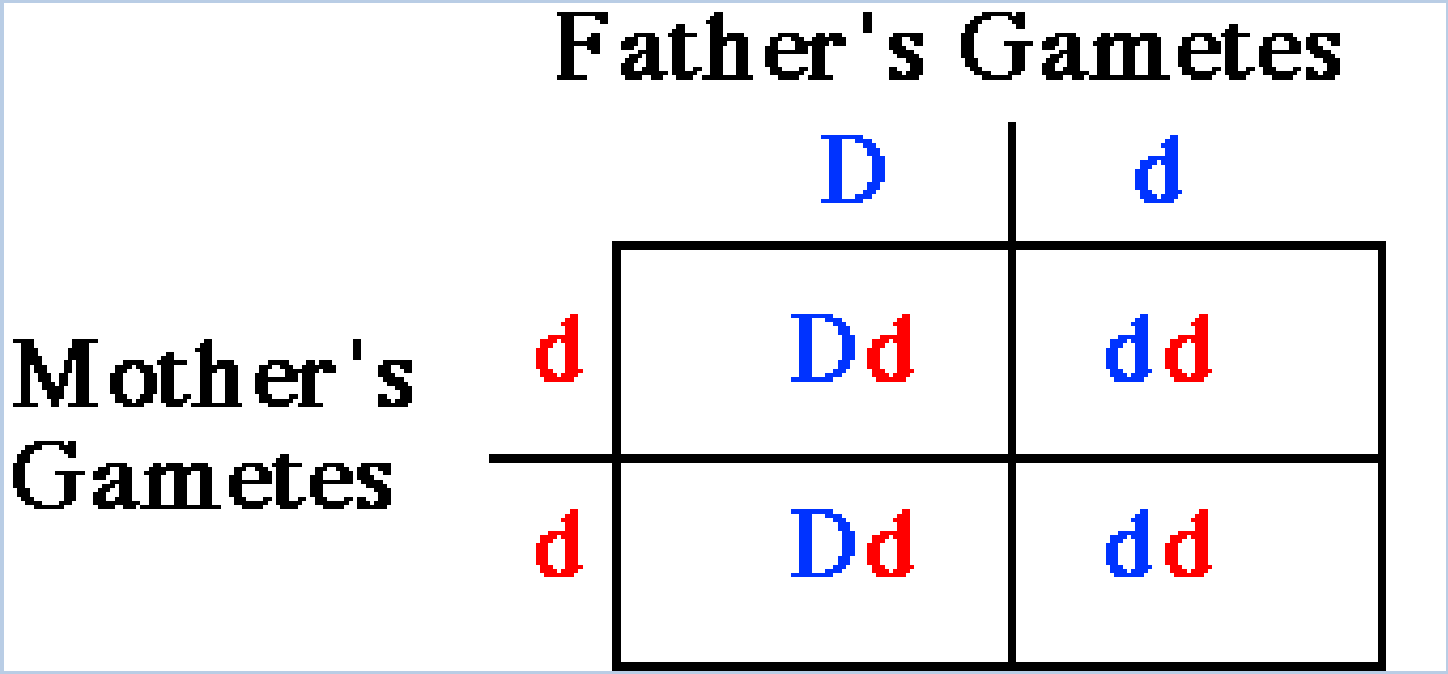
Where do the letters come from?

The alleles (letters) of each parent are separated because they are POSSIBLE GAMETES

(remember gametes only have 1 copy of each gene = 1 letter)

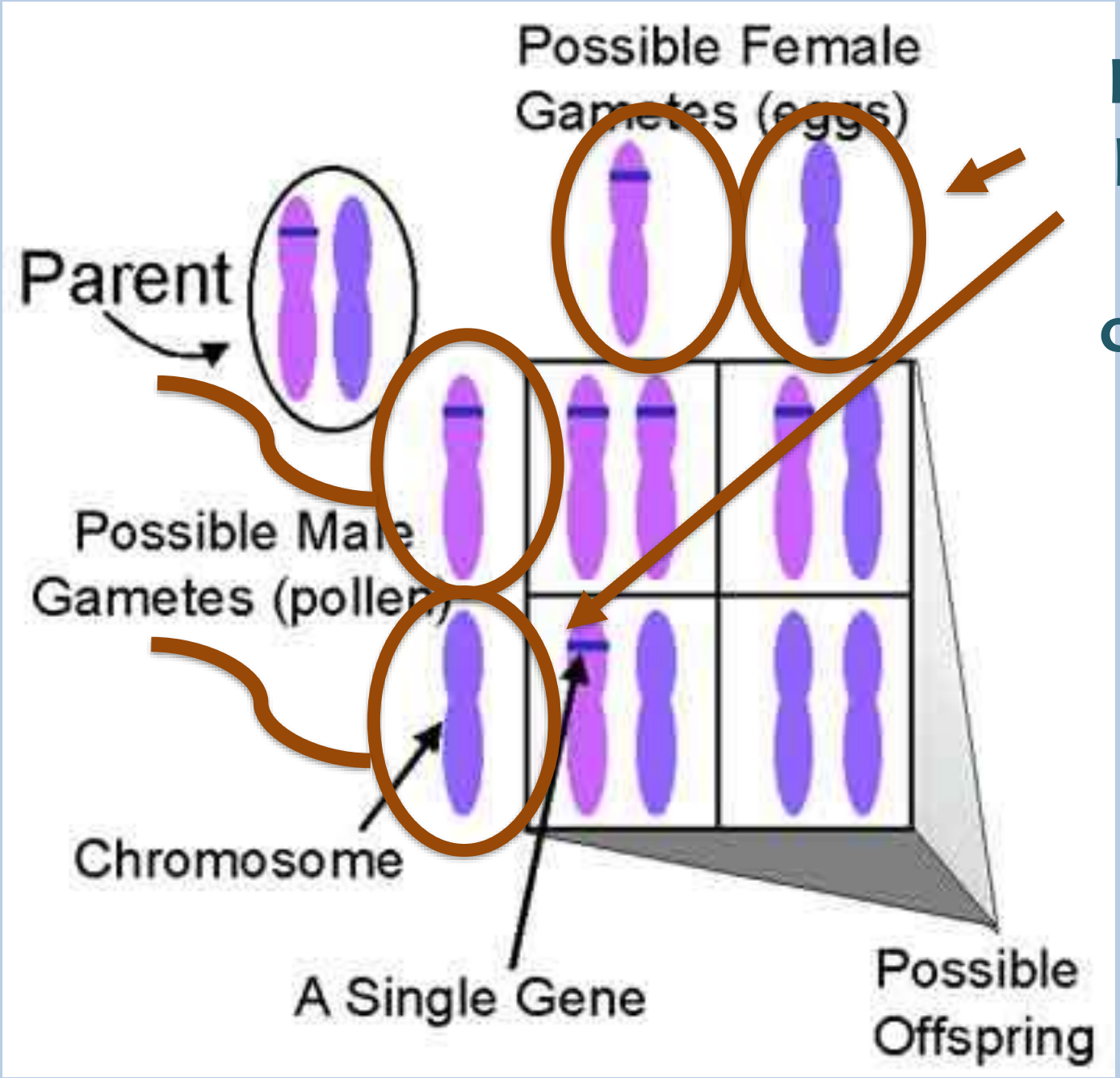
Possible alleles in sperm

Possible alleles in eggs

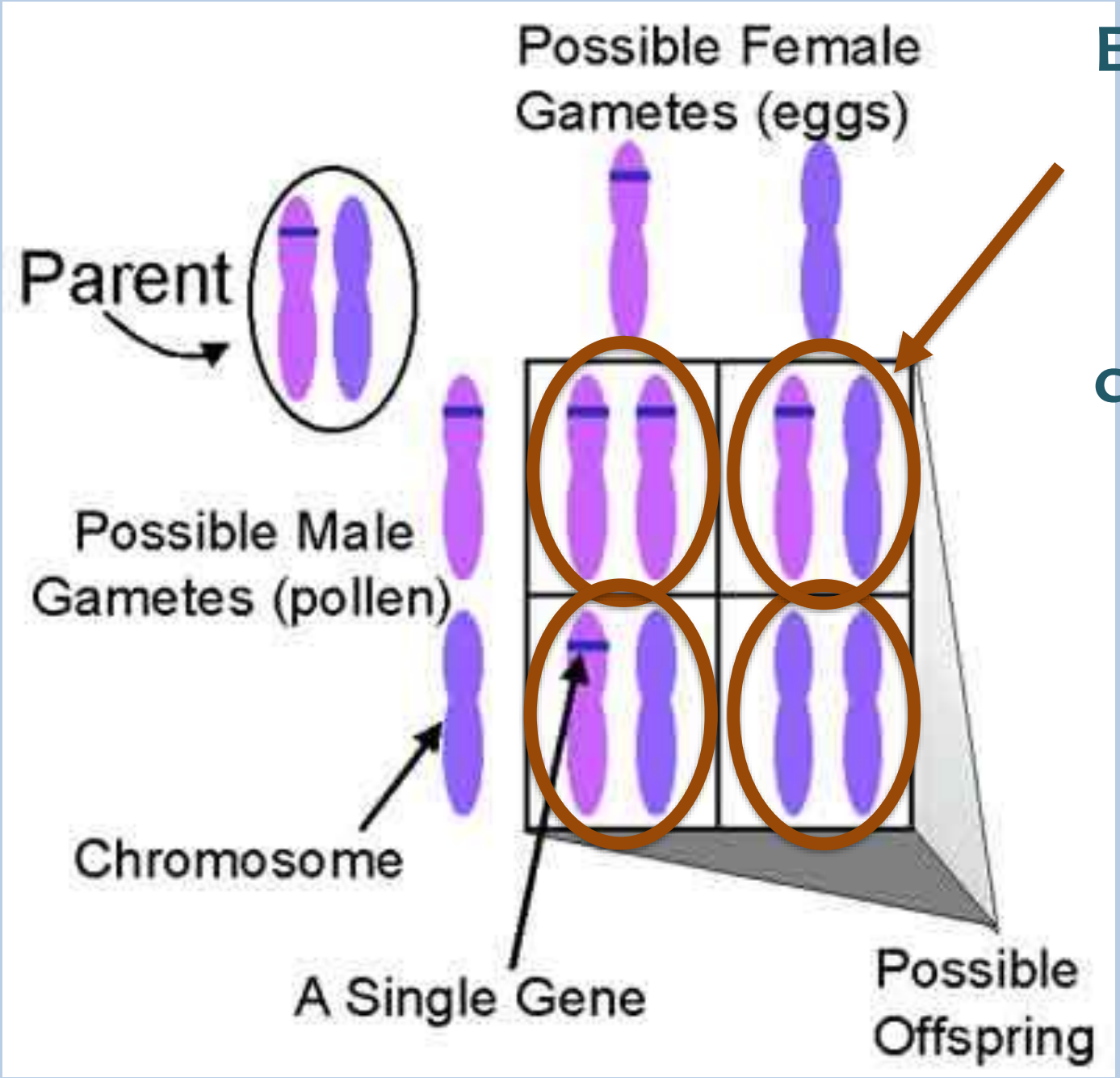


Where do the letters come from?

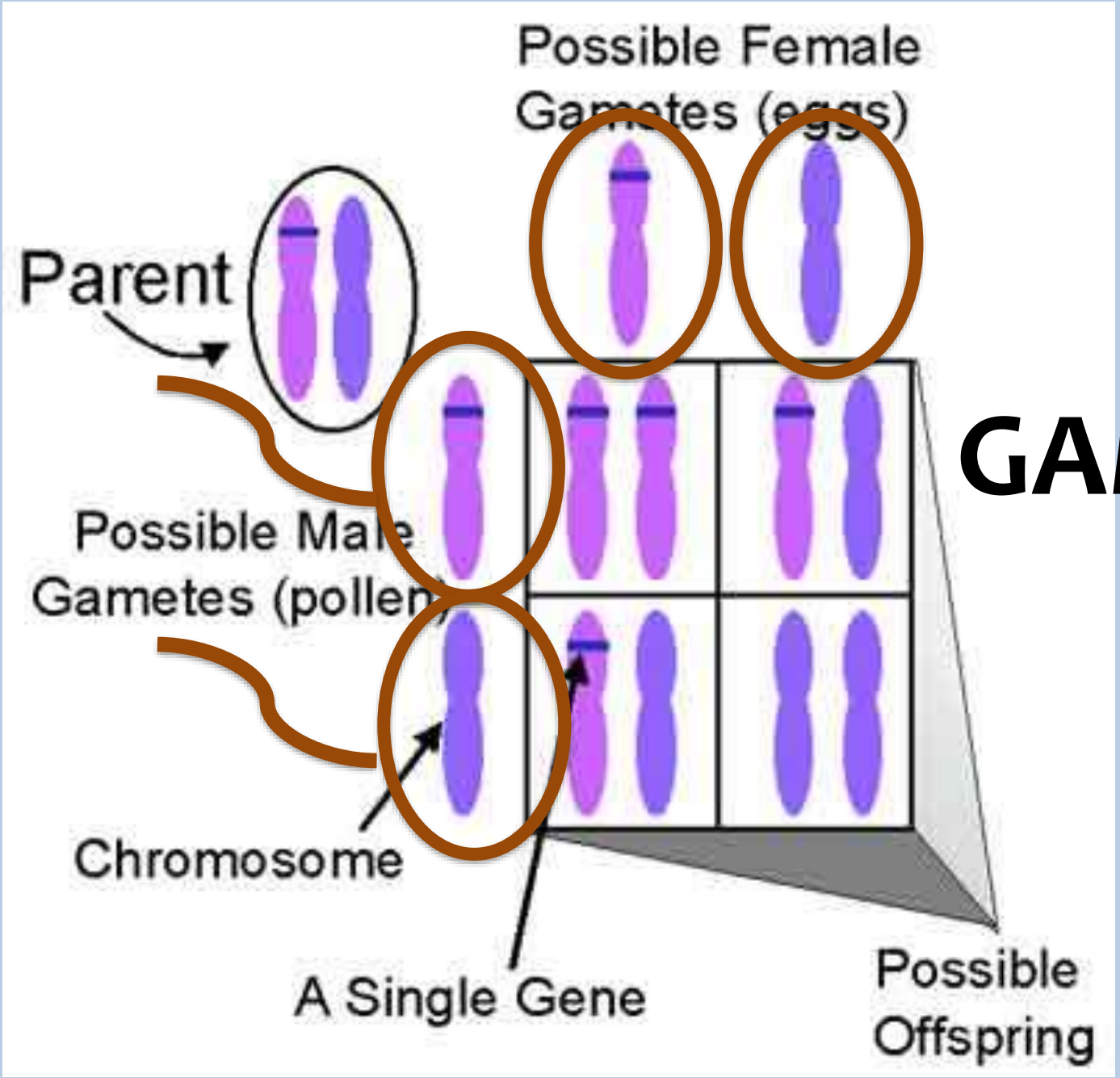
The letters INSIDE the boxes are *possible offspring* (BABIES)



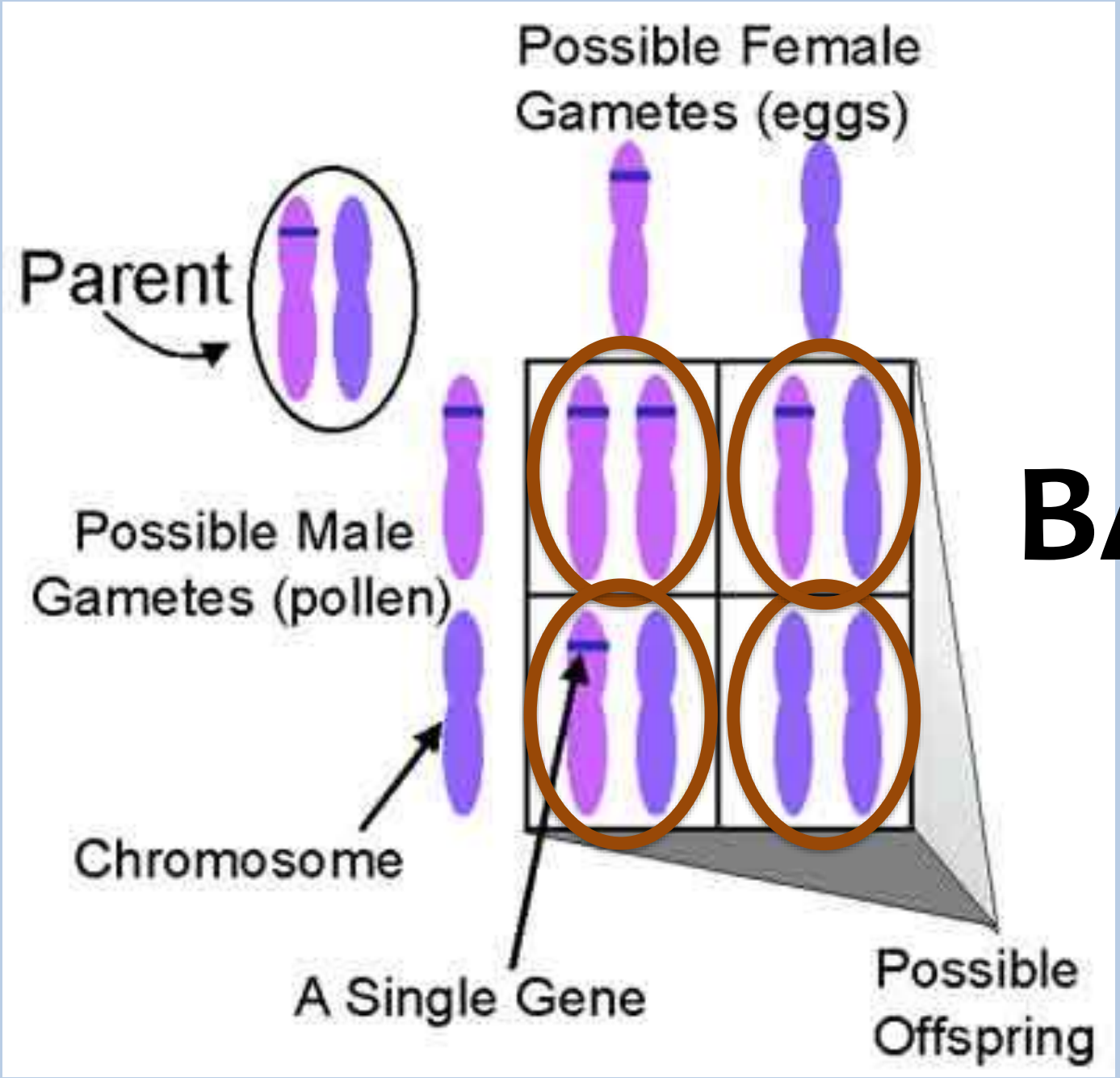
Each *gamete* has only 1 of each chromosome /gene



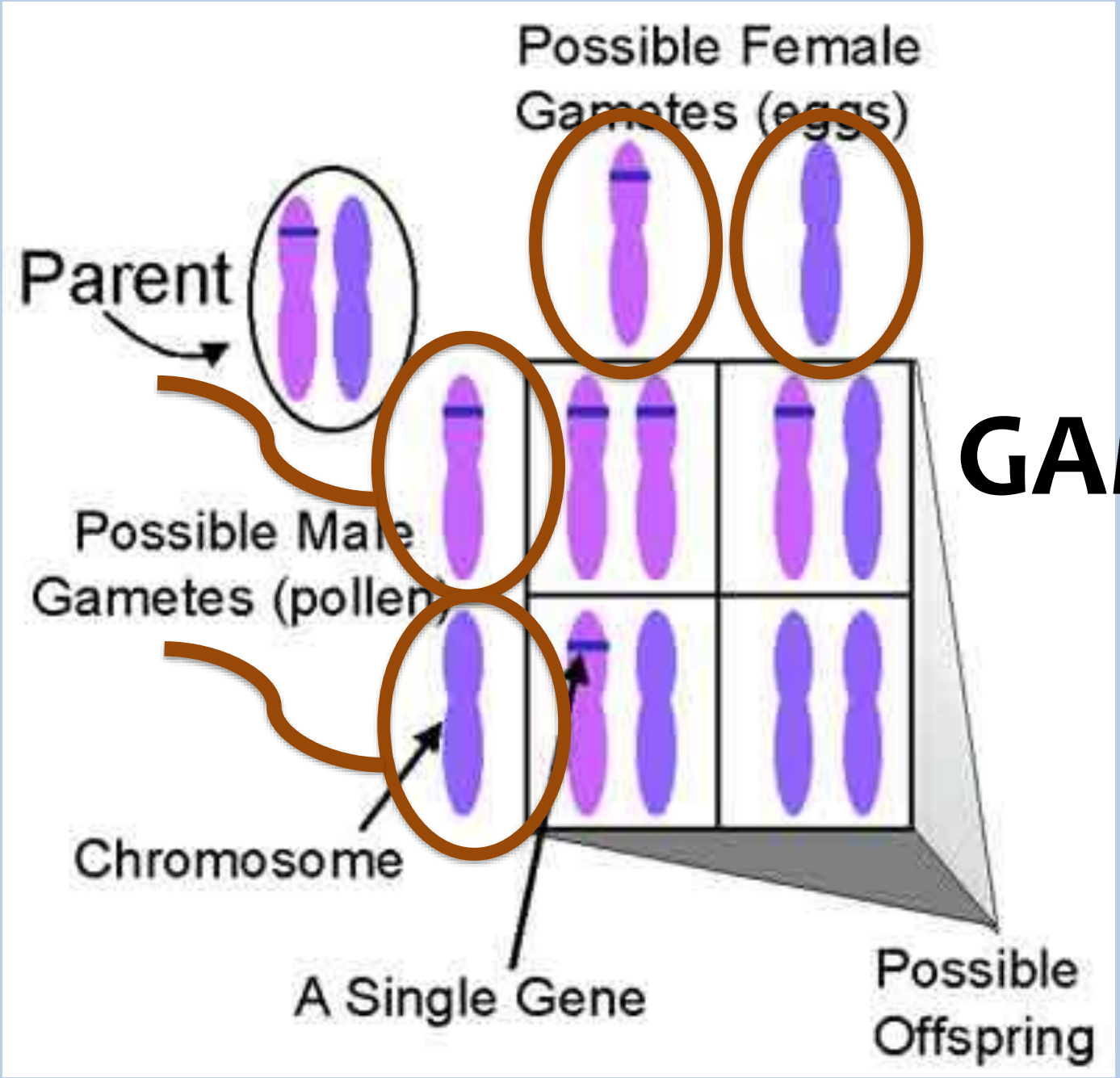
Each ***possible baby*** has 2 copies of each chromosome


Possible Female
Gametes (eggs)
Parent
Possible Male
Gametes (pollen)
Chromosome
A Single Gene
Possible
Offspring

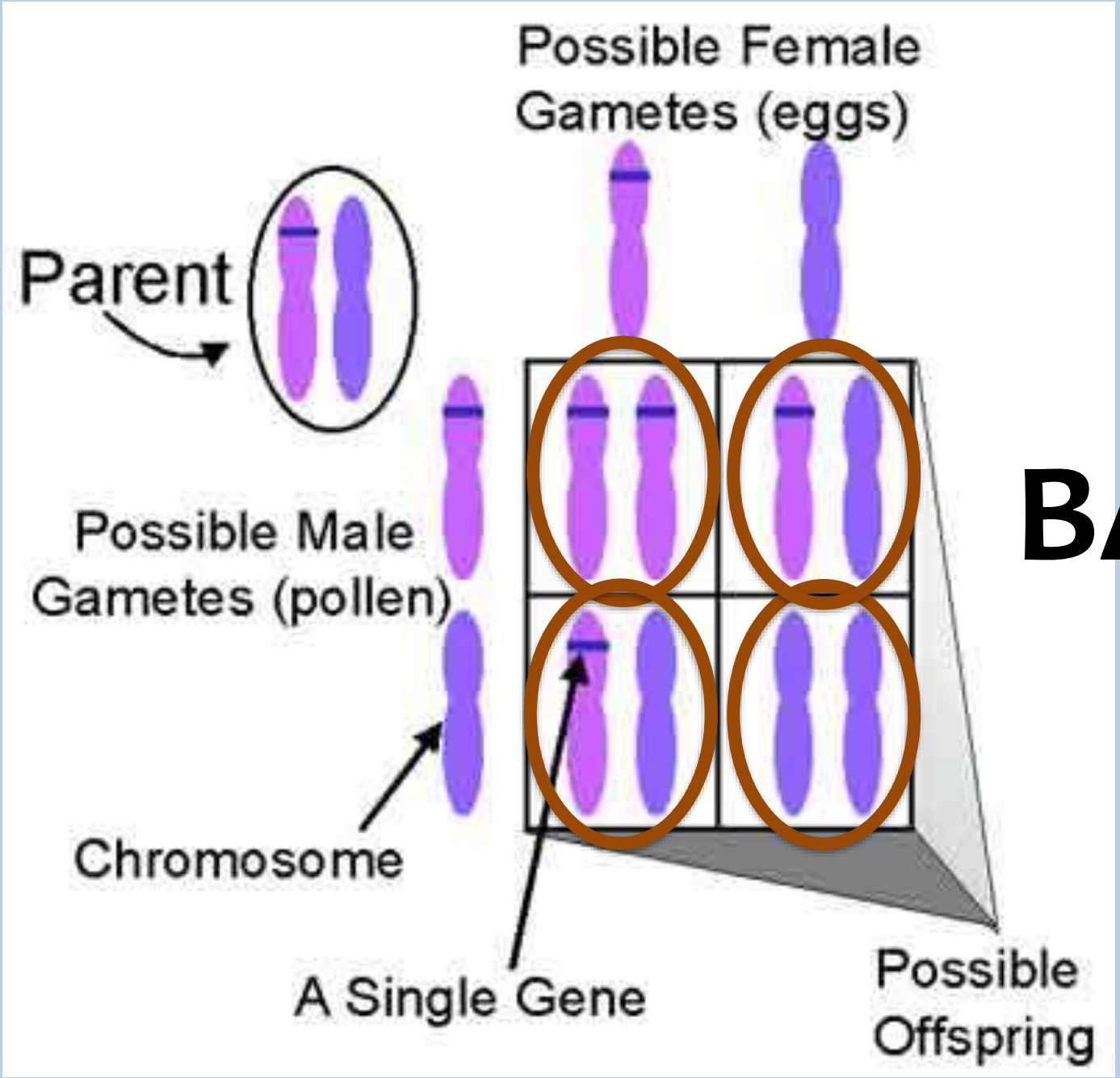
GAMETES


Possible Female
Gametes (eggs)
Parent
Possible Male
Gametes (pollen)
Chromosome
A Single Gene
Possible
Offspring

BABIES


Possible Female
Gametes (eggs)
Parent
Possible Male
Gametes (pollen)
Chromosome
A Single Gene
Possible
Offspring

GAMETES


Possible Female
Gametes (eggs)
Parent
Possible Male
Gametes (pollen)
Chromosome
A Single Gene
Possible
Offspring

BABIES

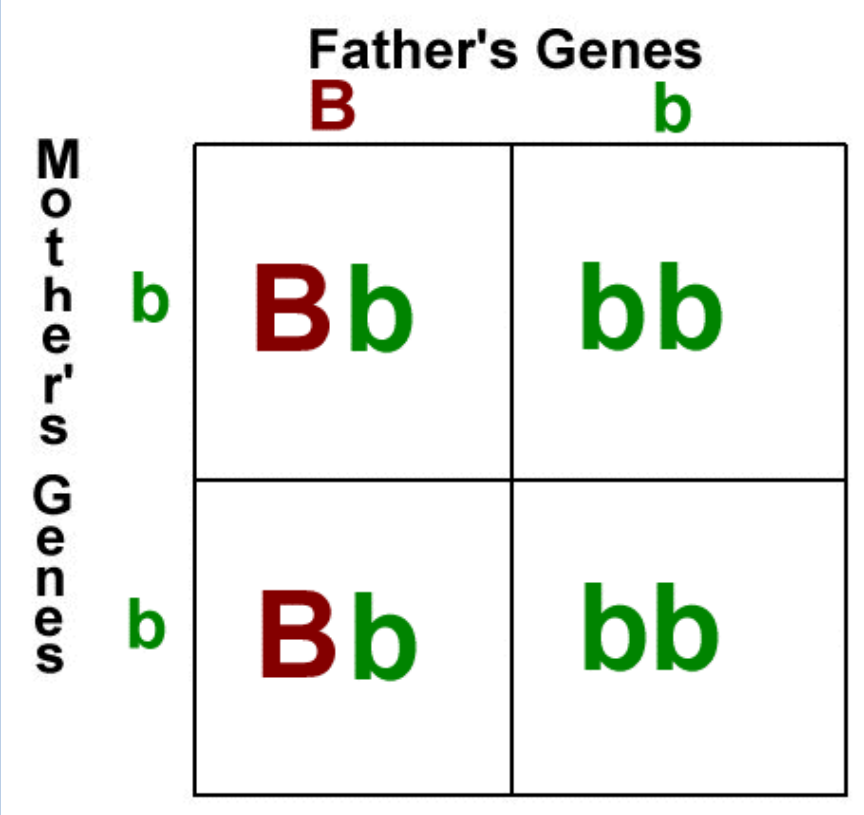
Example:

This (boring) video tutorial will show every step for completing a Punnett Square (which will help you with your work)

https://www.youtube.com/watch?v=0R61zJfIwHc

There are different probabilities of *offspring genotypes* based on the *parent alleles*.

We can show these probabilities with ratios:



Genotypic: HD:Ht:hr

Phenotypic: DOM: rec

Monohybrid Crosses

- Finish Genetics Background Sheet
  - ✓ Get checked off
- Start the Cross Application Problems