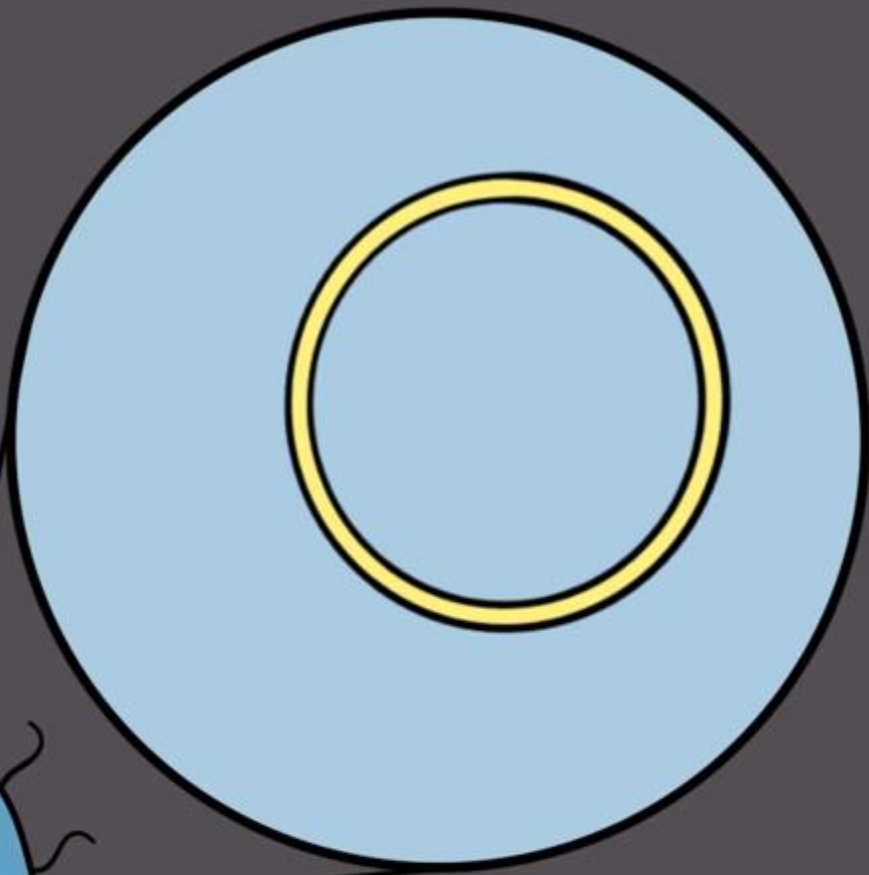


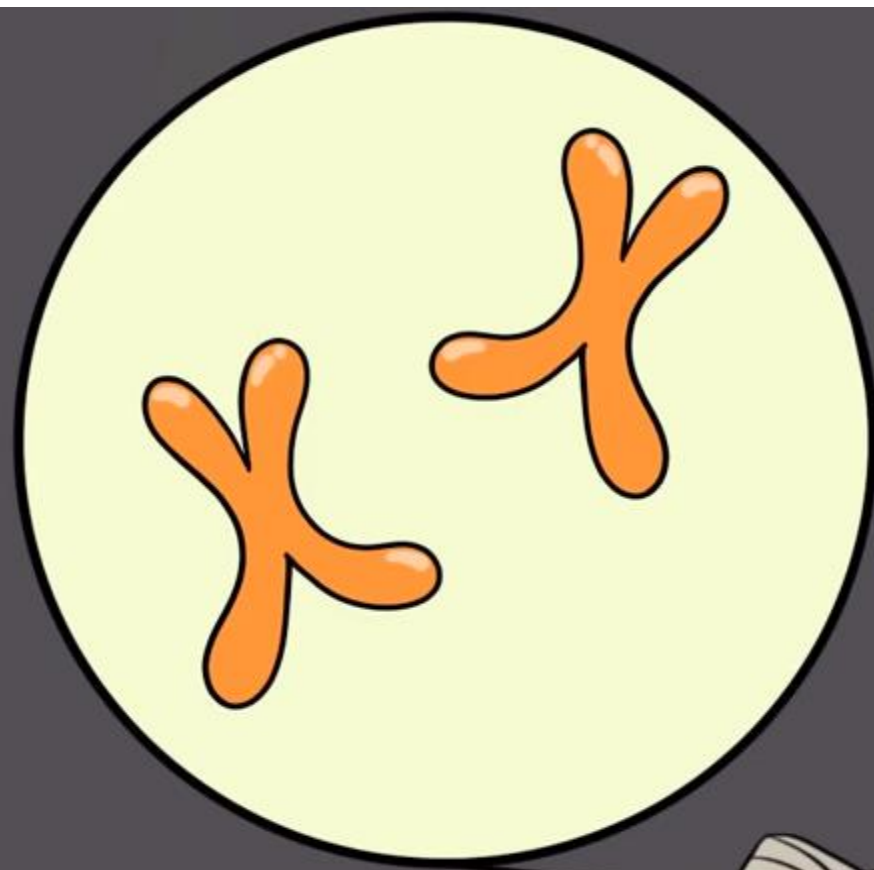
CHROMOSOMES & KARYOTYPES



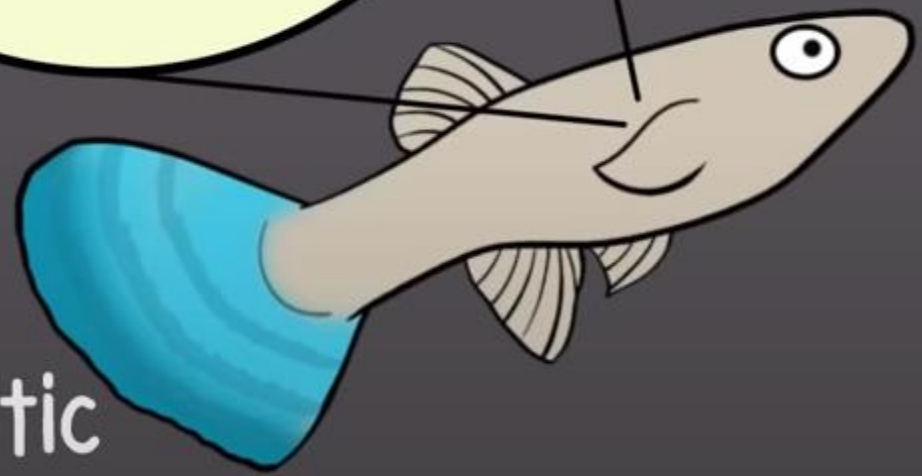
@AmoebaSisters

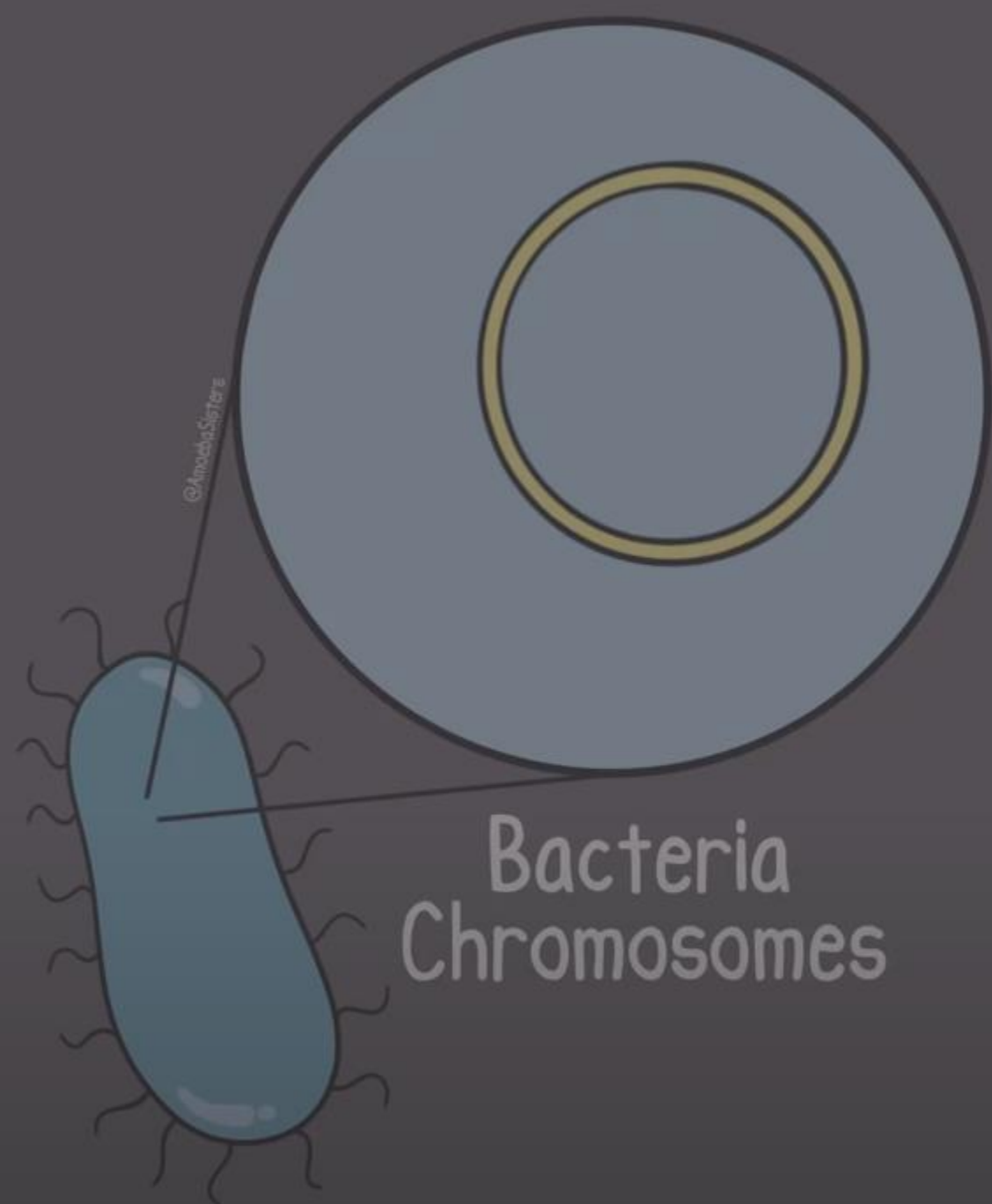


Bacteria
Chromosomes

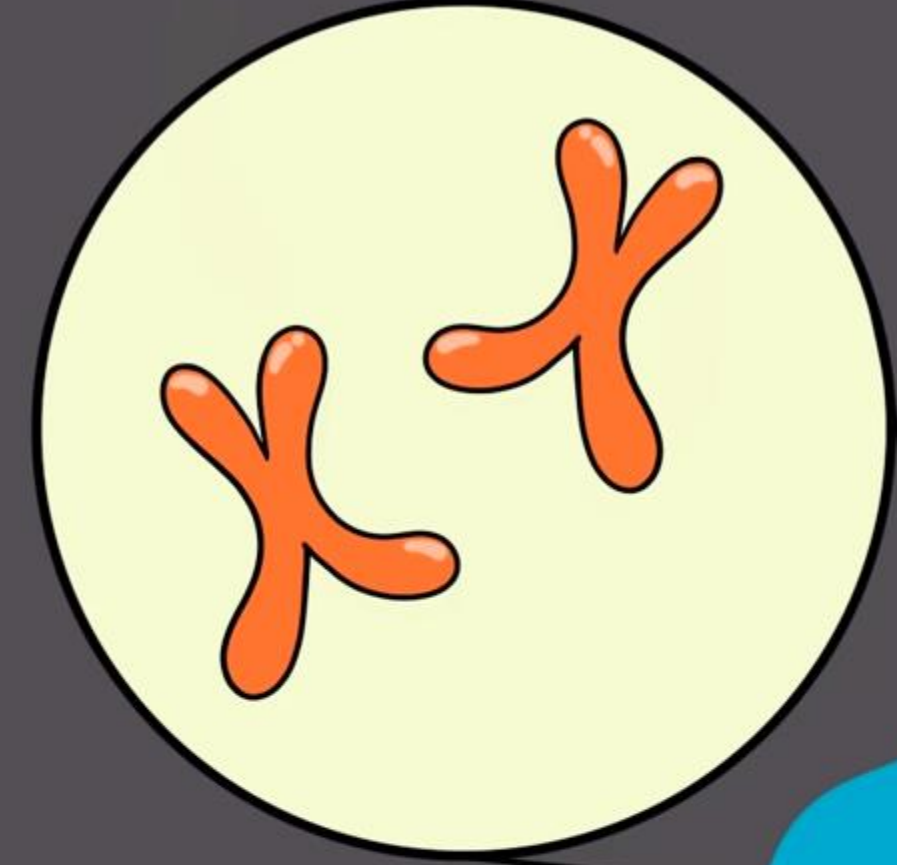


Eukaryotic
Chromosomes

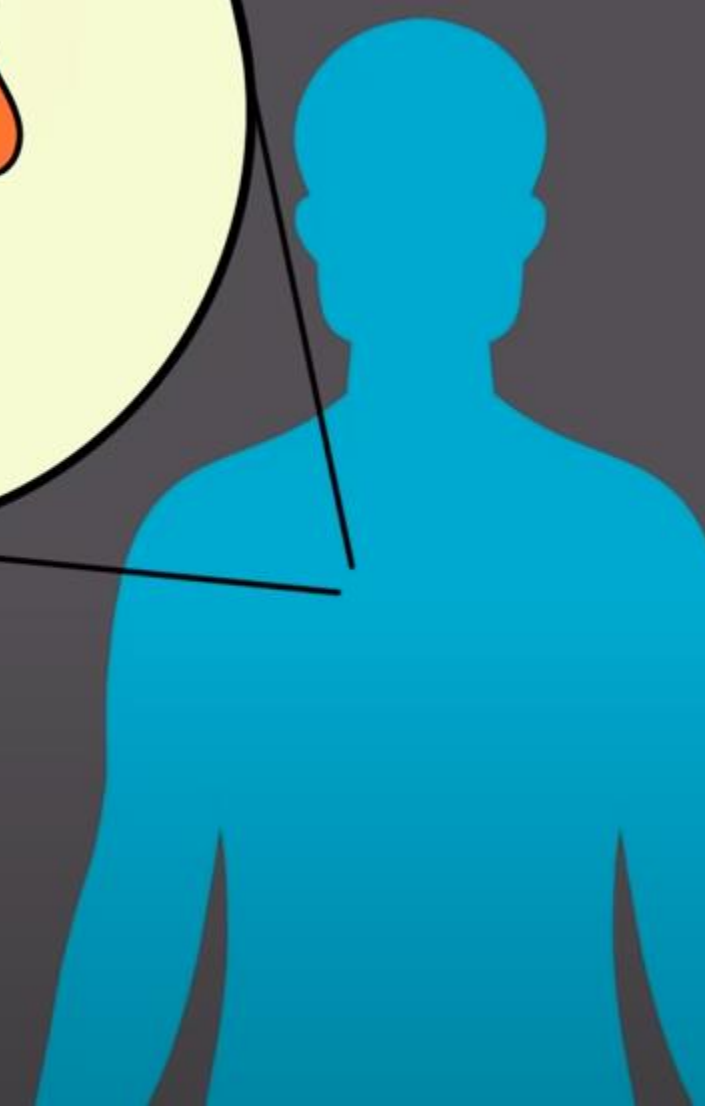


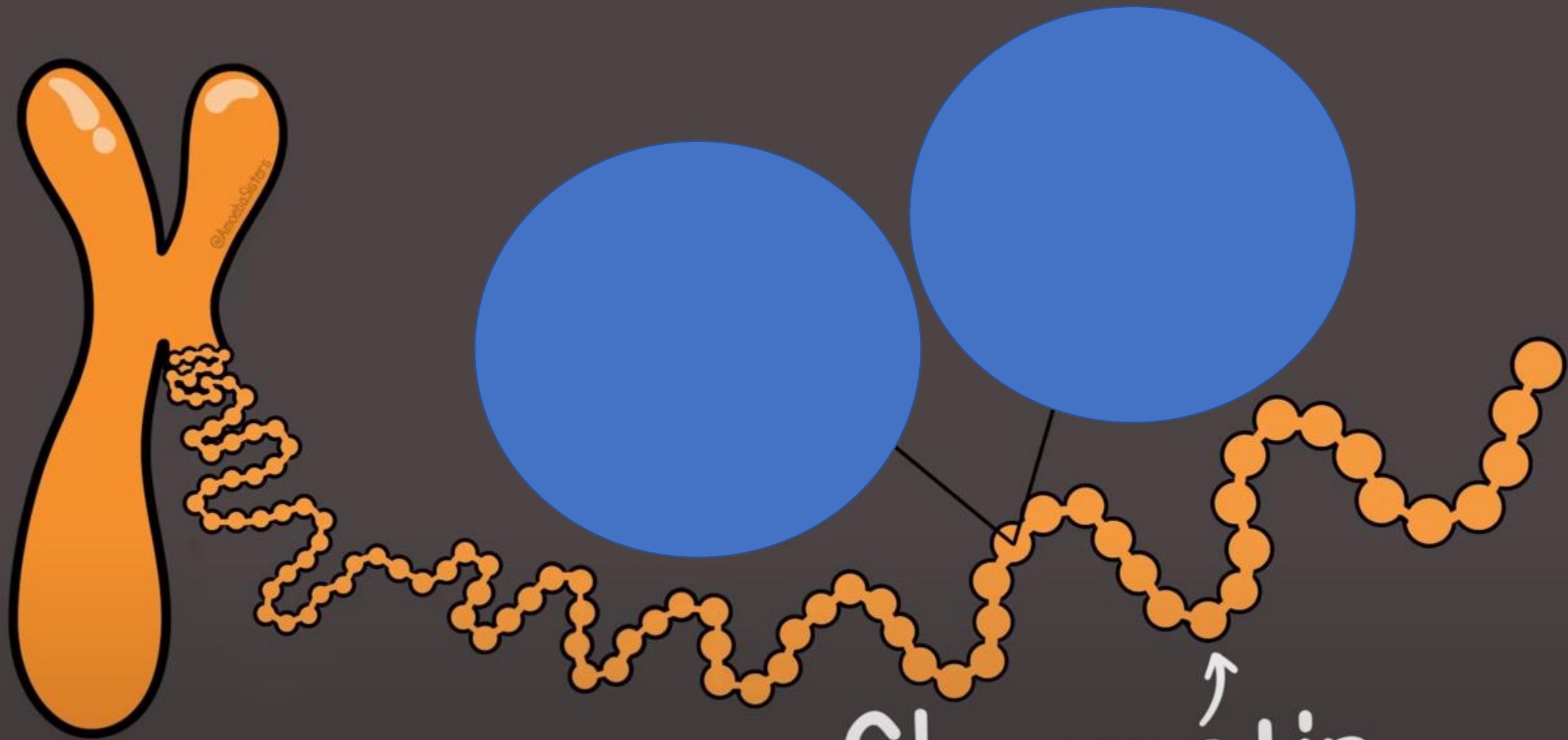


Bacteria
Chromosomes

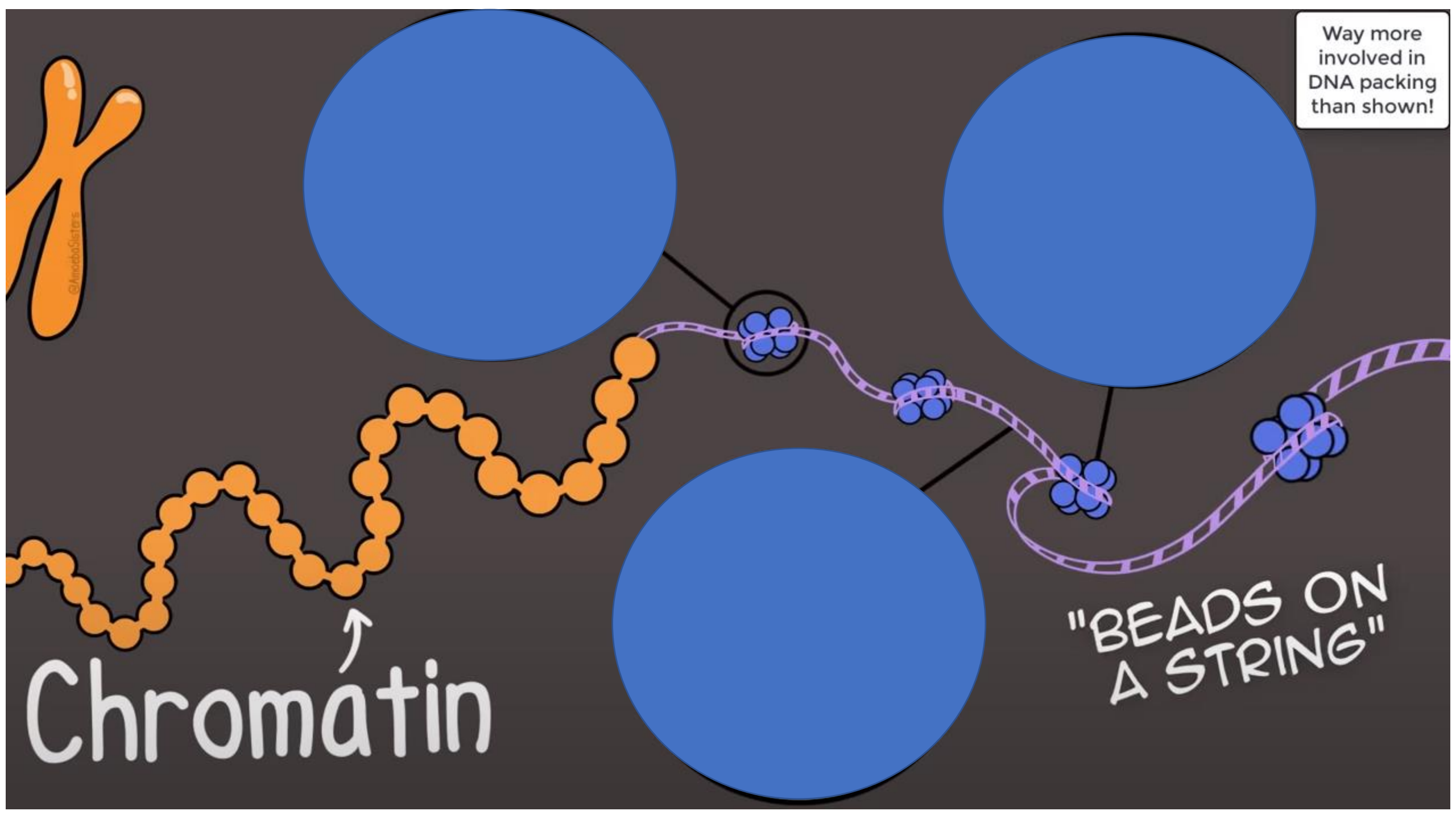


Eukaryotic
Chromosomes





Chromatin



Way more involved in DNA packing than shown!

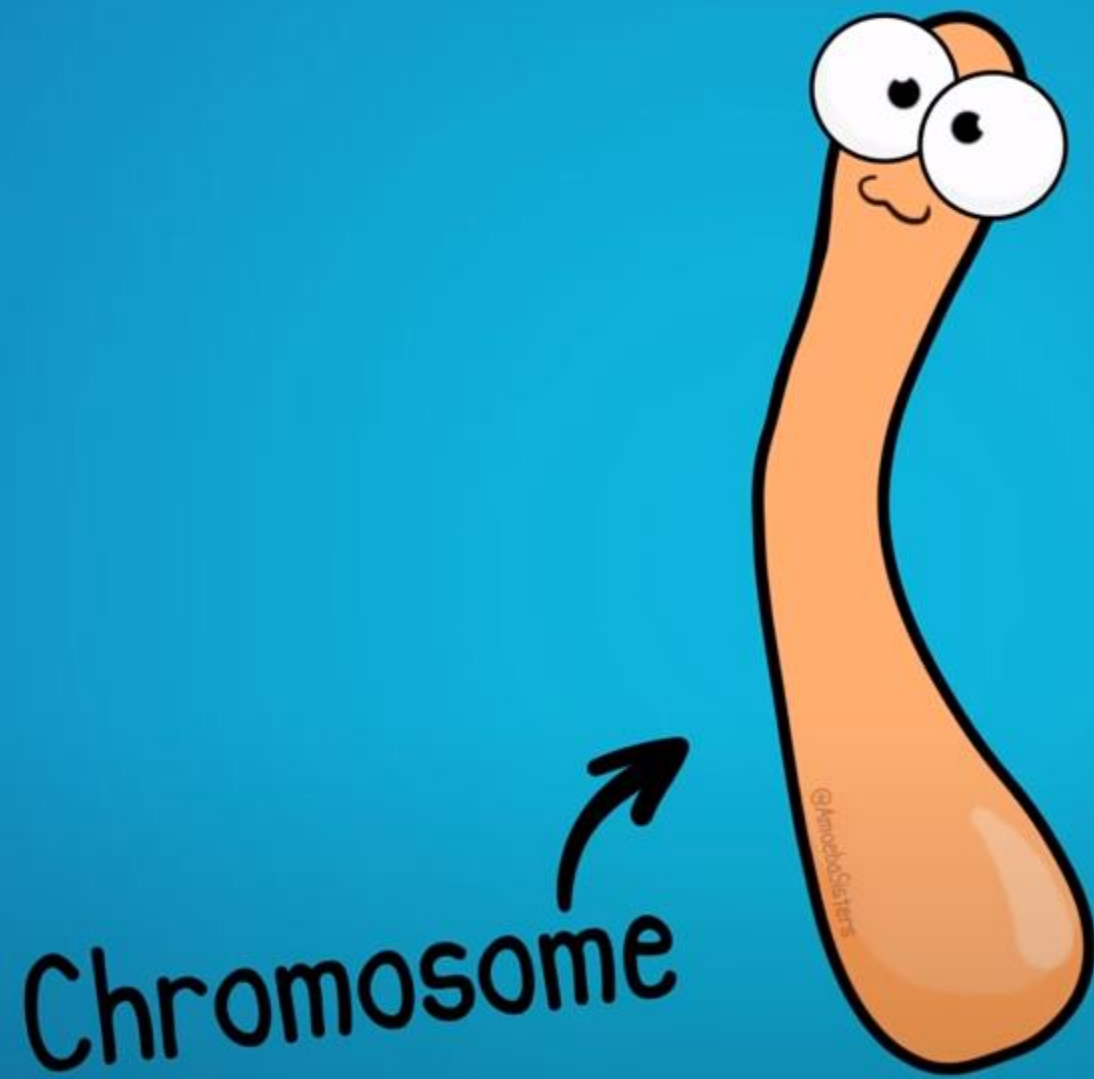
Chromatin

"BEADS ON A STRING"

©AmindaSisters

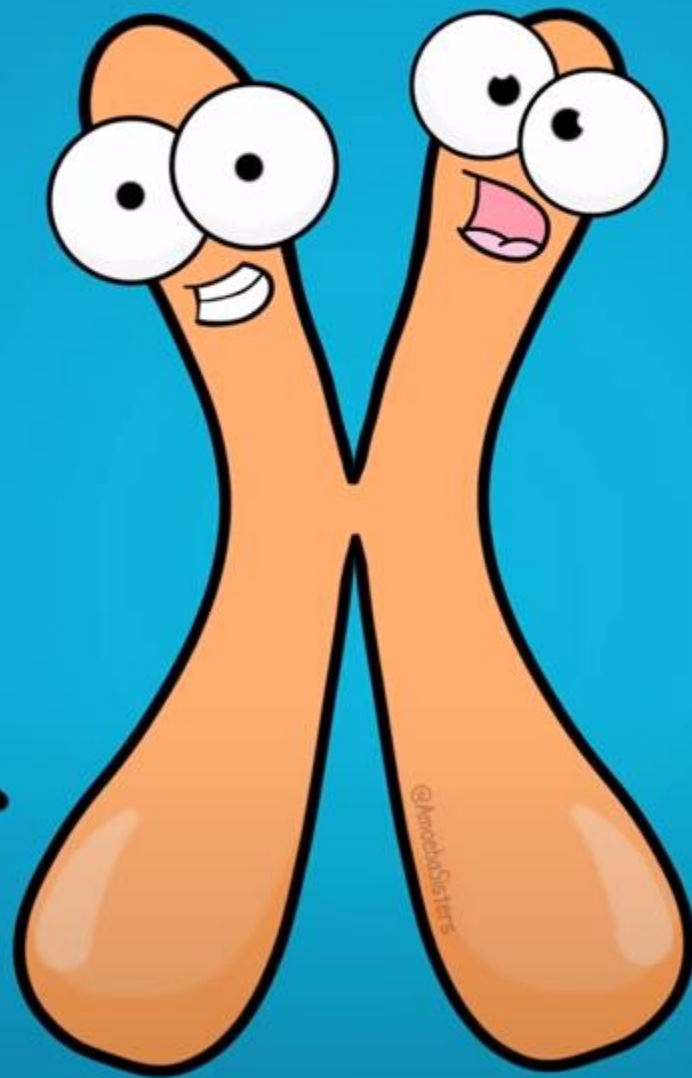


"BEADS ON
A STRING"



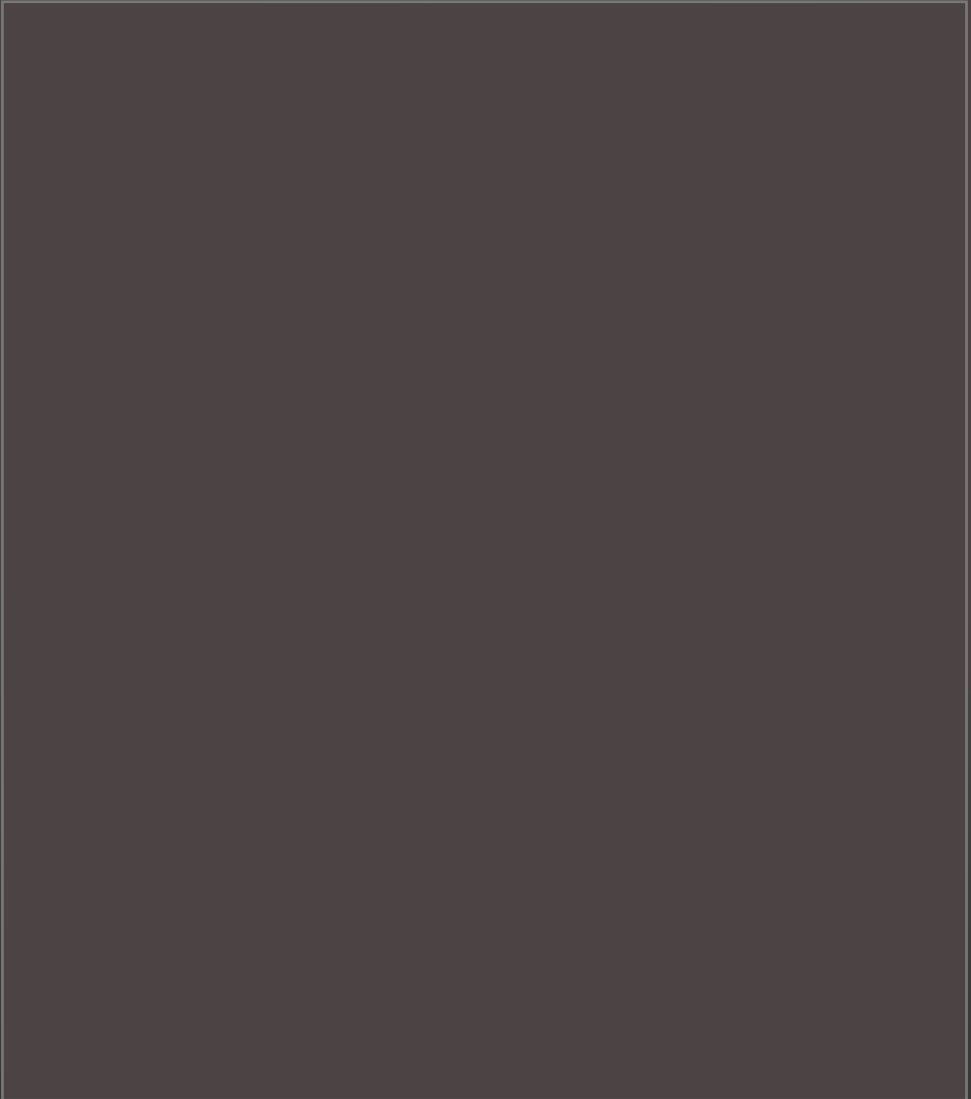
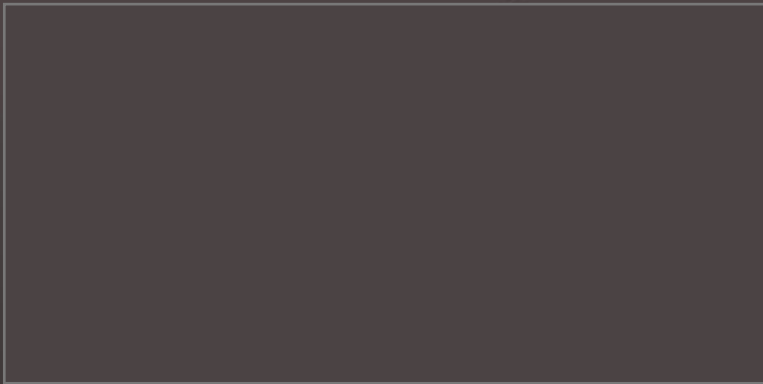
Chromosome

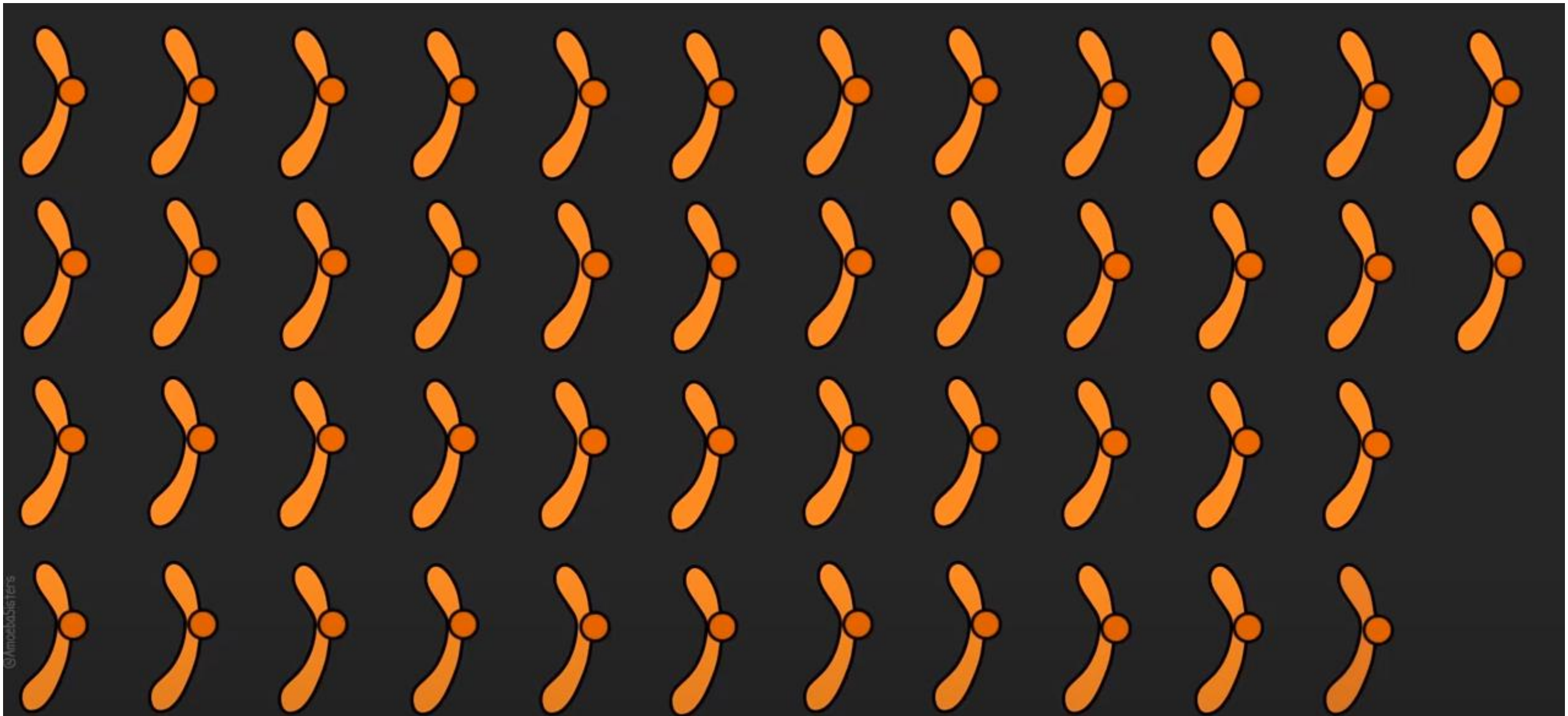
Also a
chromosome





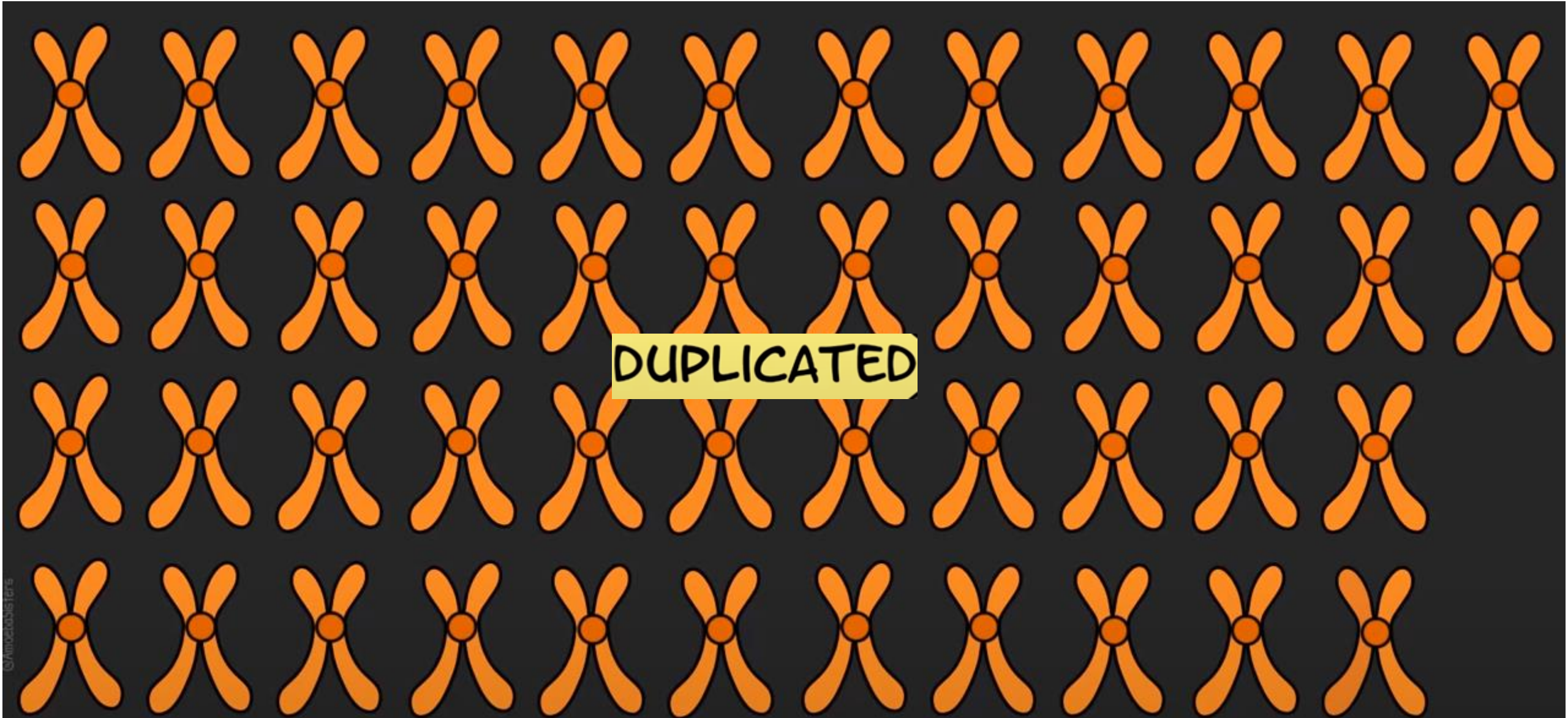
1 Chromosome
1 Chromatid





46 Chromosomes

46 Chromatids

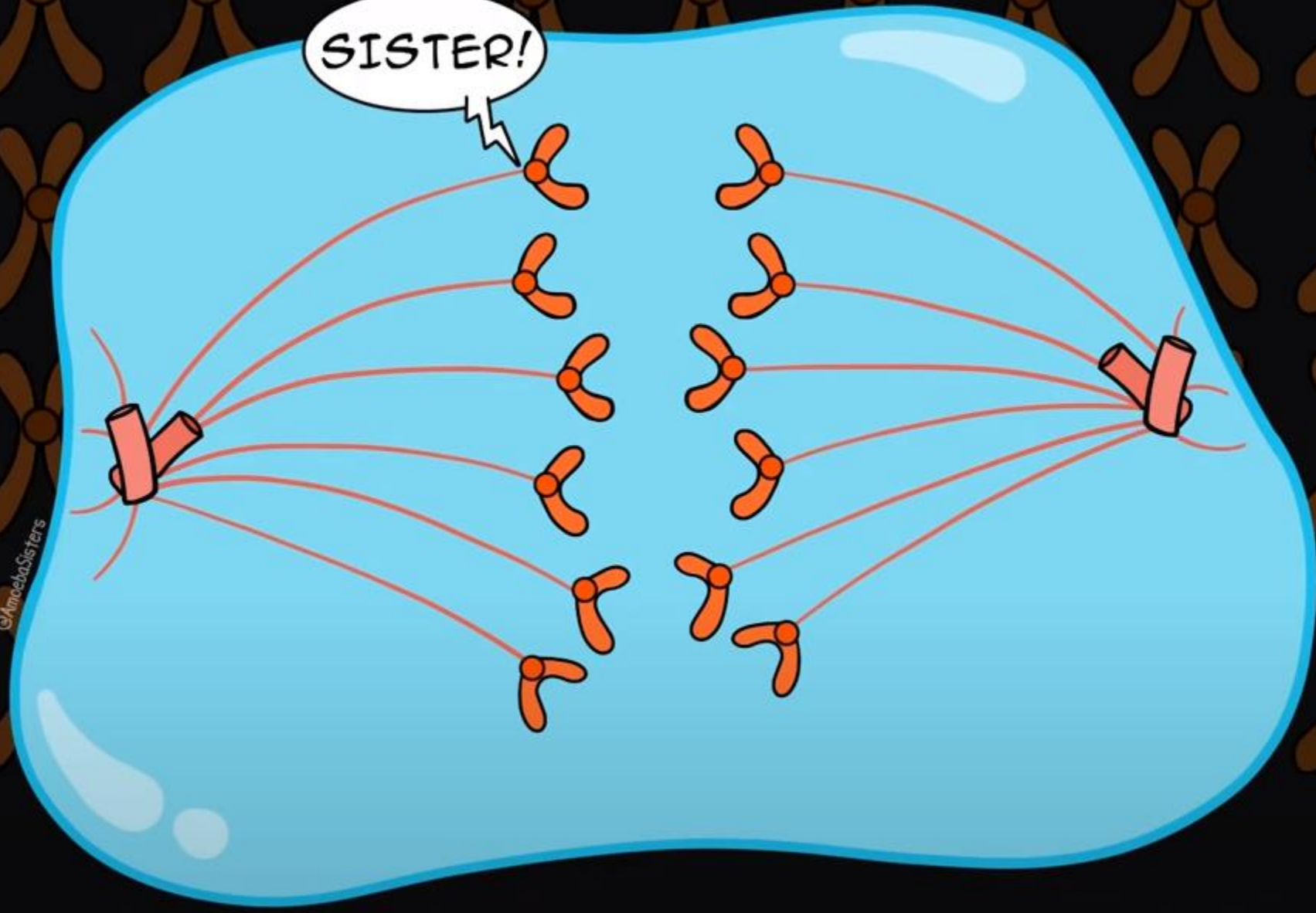


(still) 46 Chromosomes

92 Chromatids

SISTER!

©AncestralSisters



KARYOTYPE

GASP

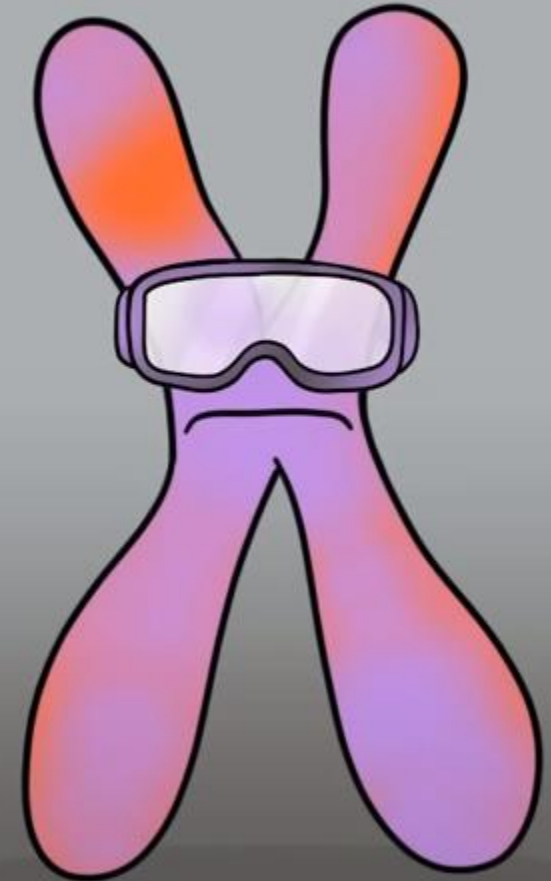
GHIC! Get my camera!

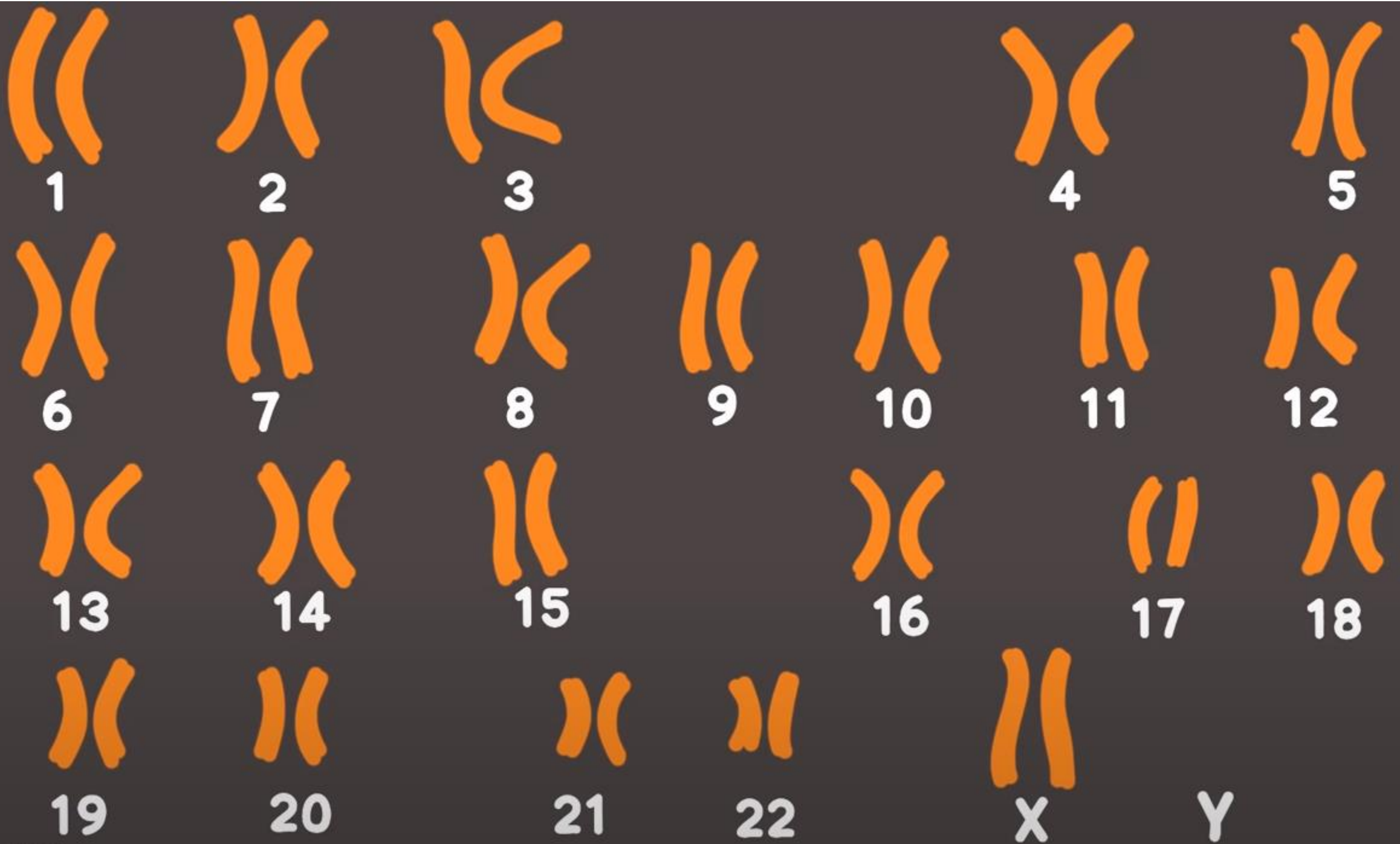


A way to see all of your chromosomes clearly!



In a Karyotype, all of the chromosomes are stained and visible



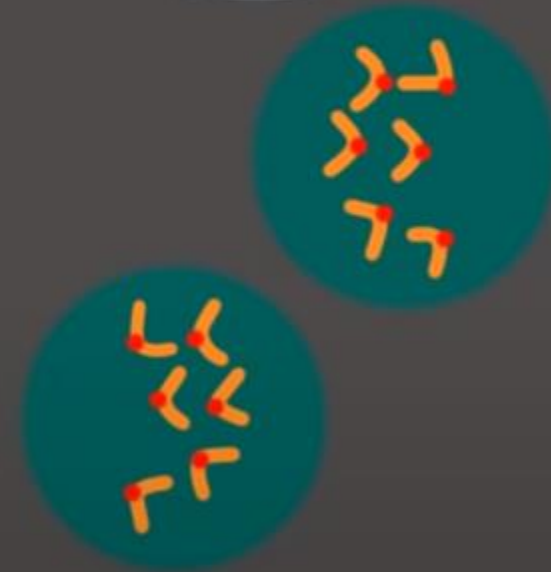


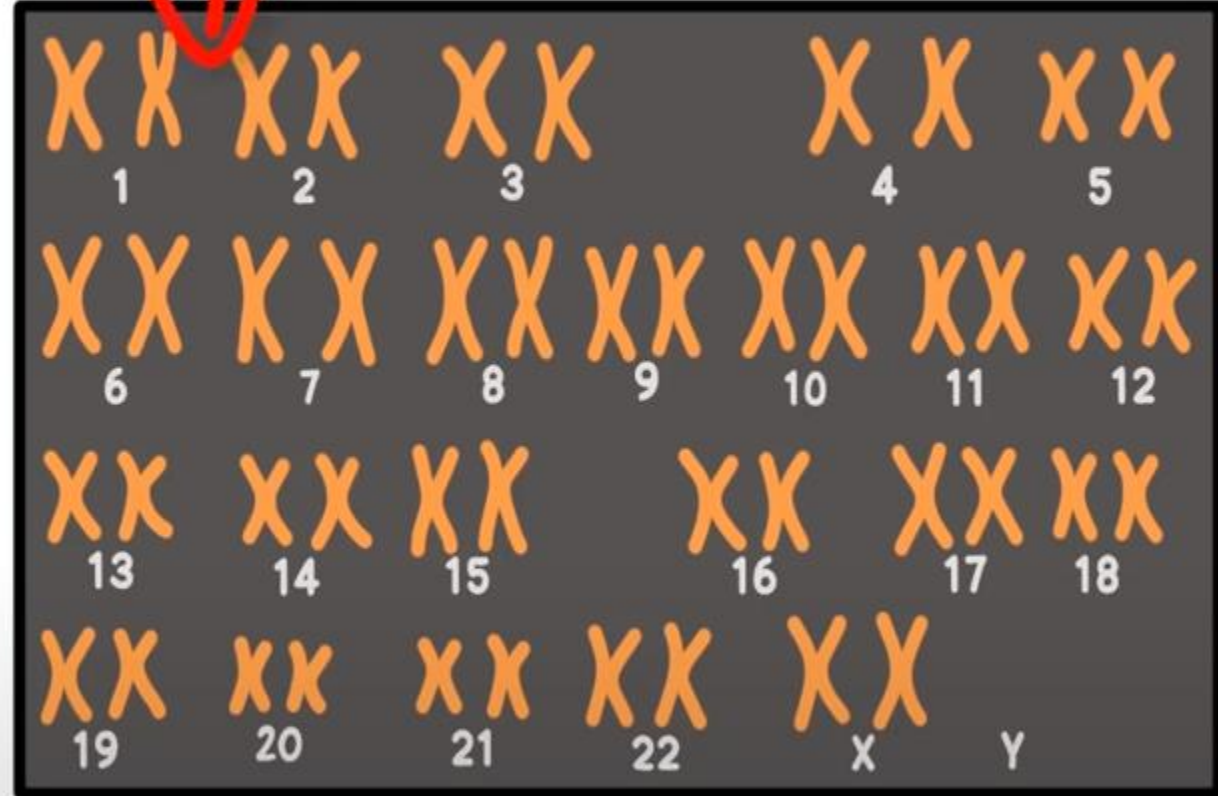
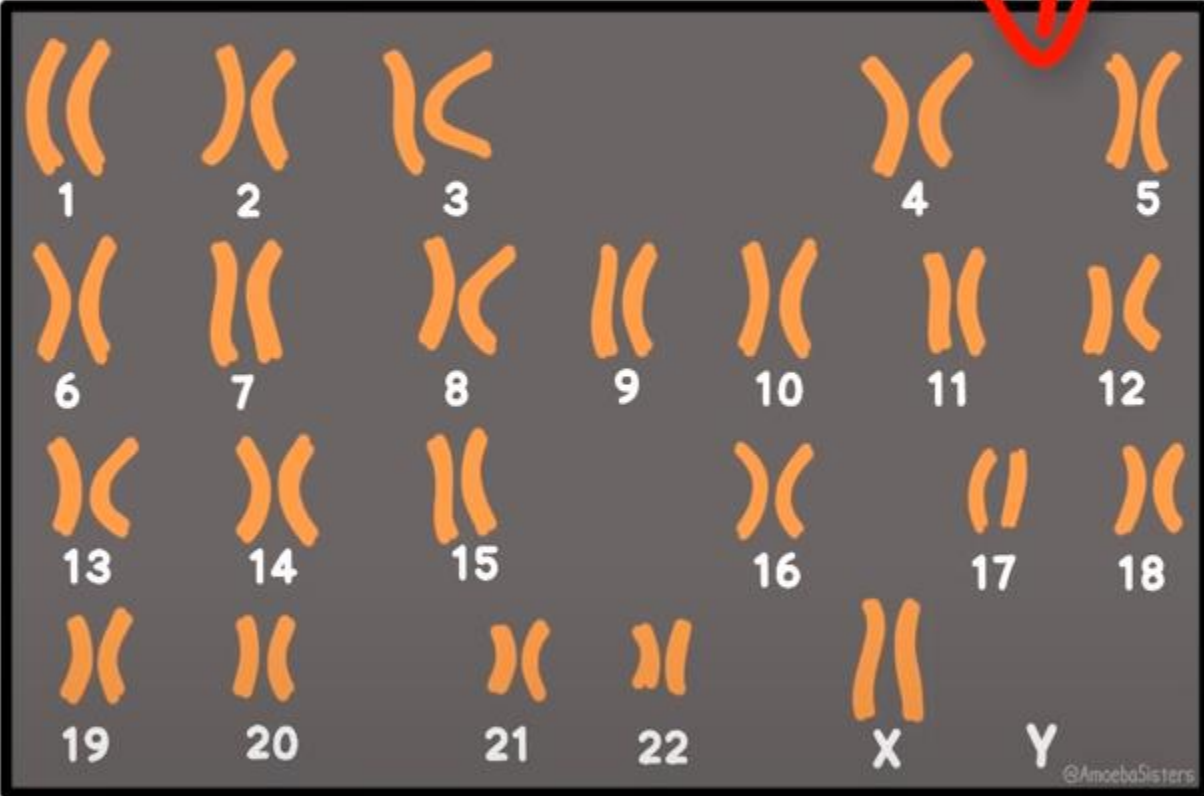
Prophase

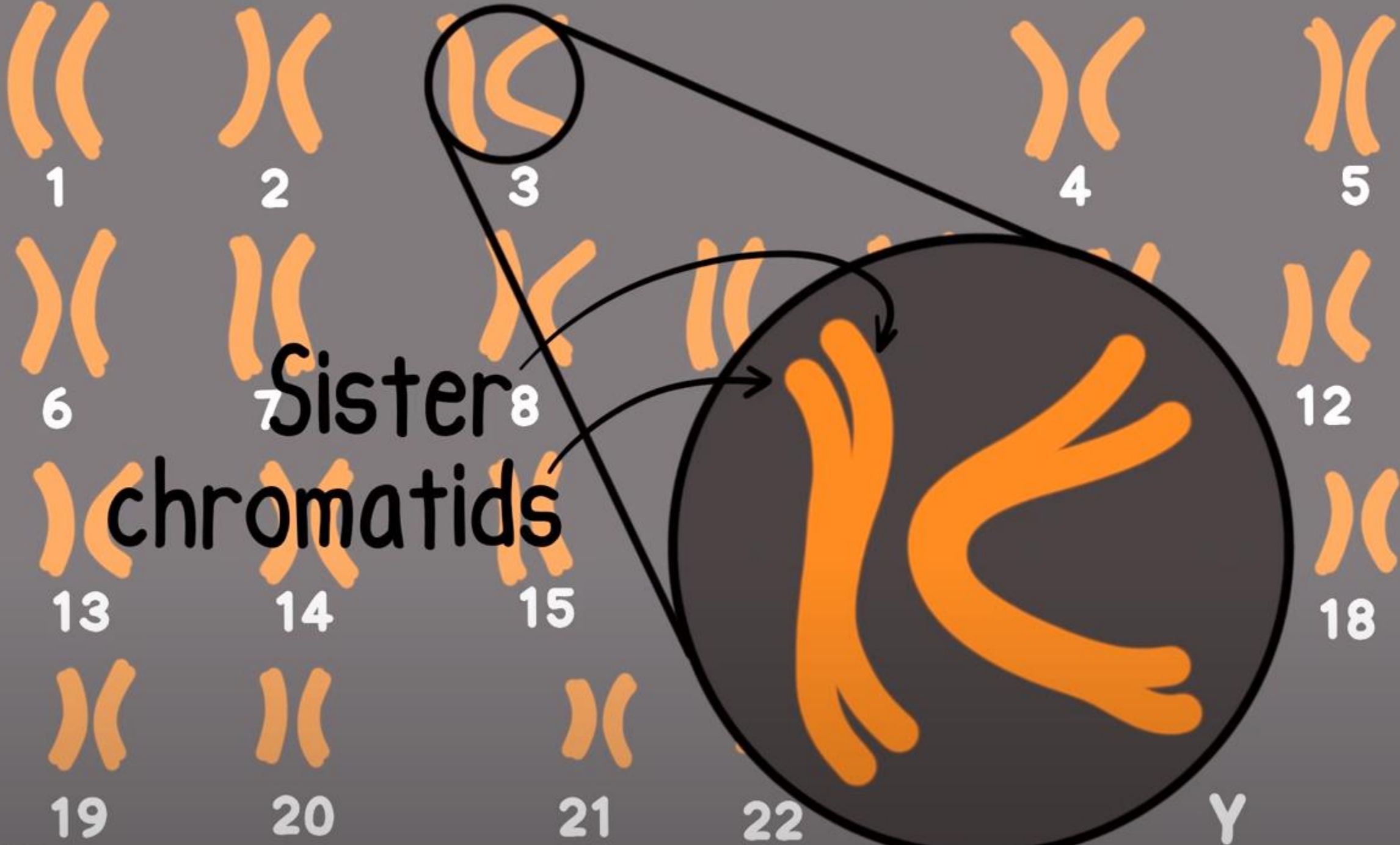
Metaphase

Anaphase

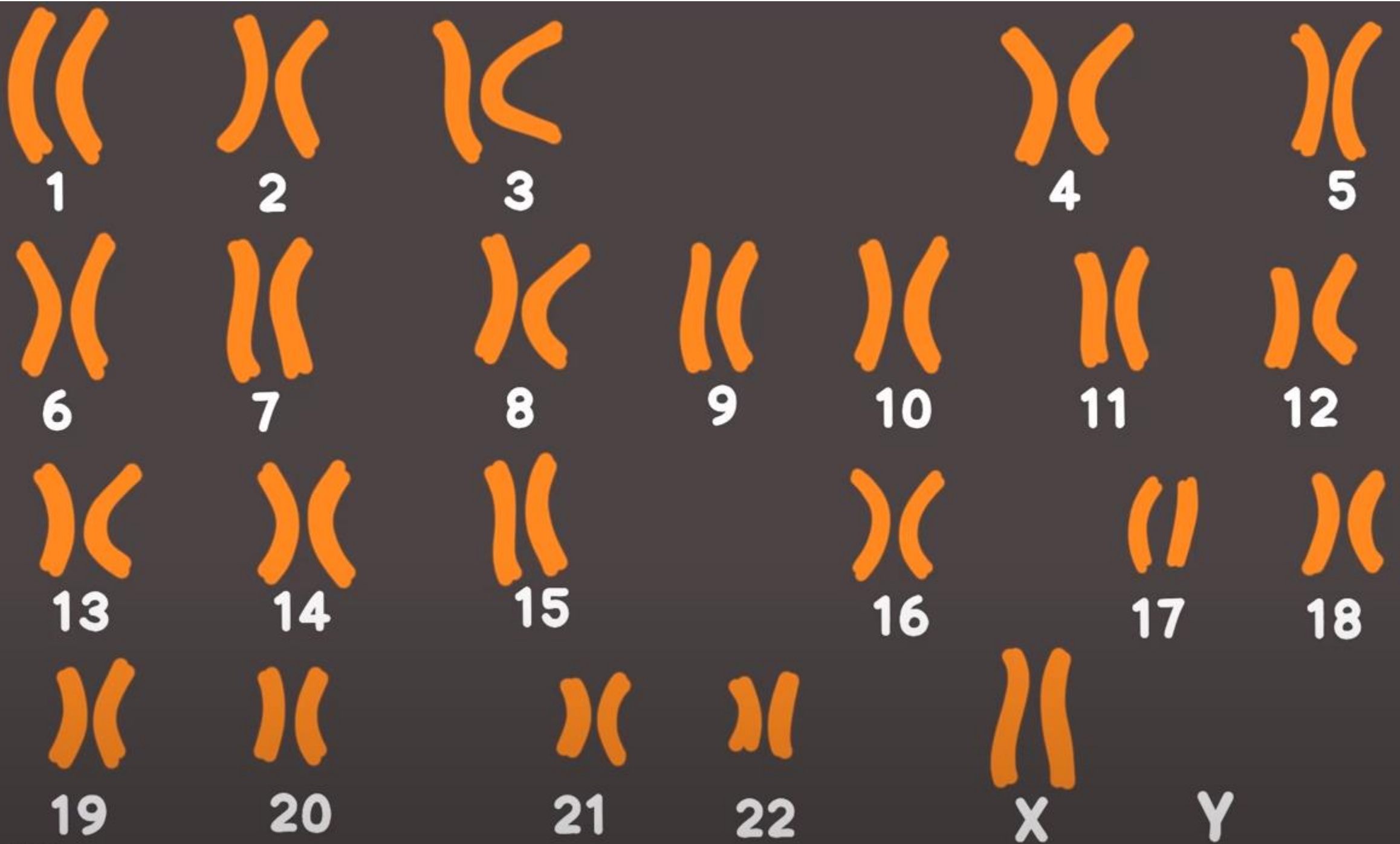
Telophase







Sister chromatids



HOMOLOGOUS PAIRS

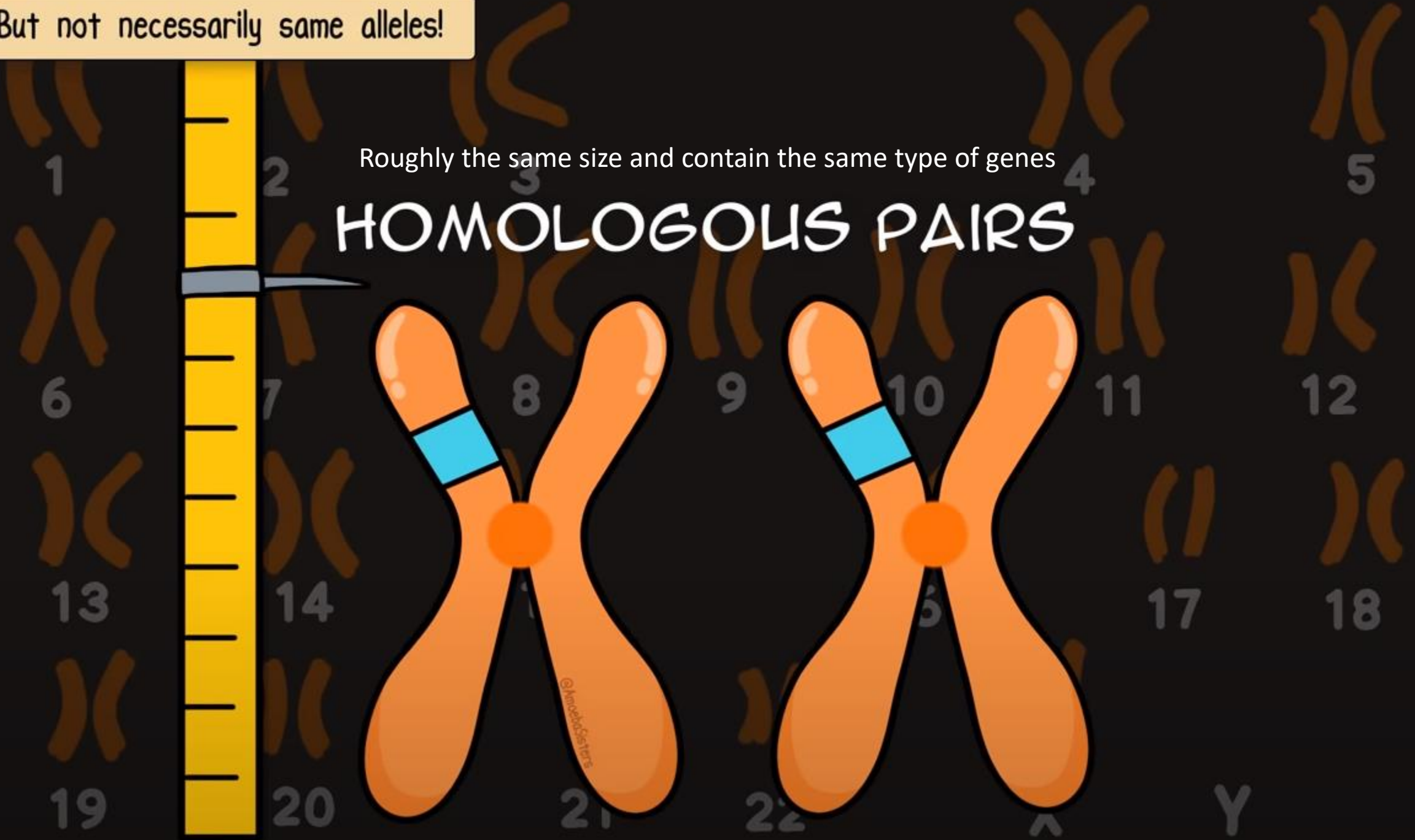


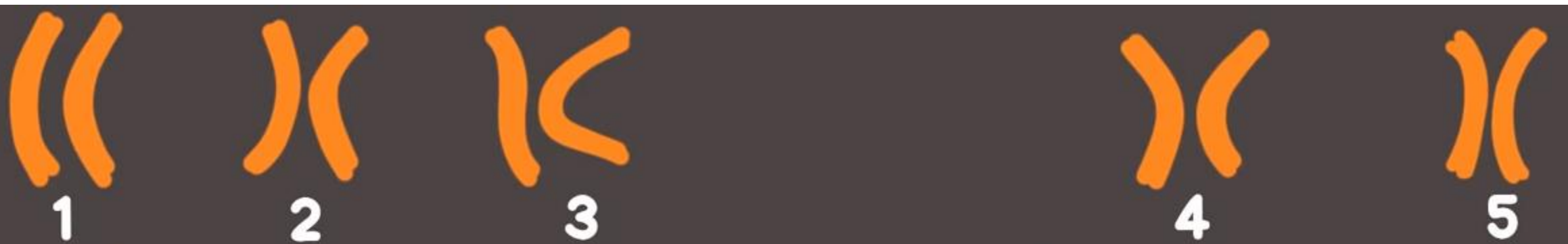
©Amoeba Sisters

But not necessarily same alleles!

Roughly the same size and contain the same type of genes

HOMOLOGOUS PAIRS

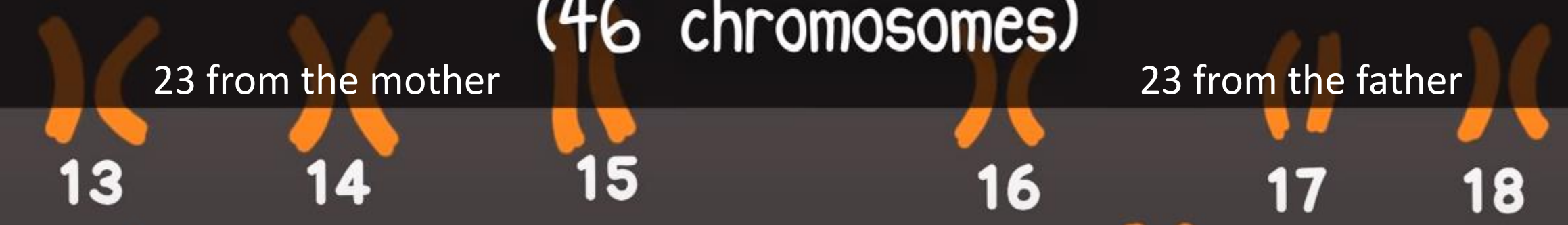




23 PAIRS
(46 chromosomes)

23 from the mother

23 from the father





1



2



3



4



5



6



7



8



9



10



11



12



13



14



15



16



17



18



19



20



21



22



X

22 Pairs

Autosomes



Autosomes

©AmoebaSisters



1



2



3



4



5



6



7



8



9



10



11



12



13



14



15



16



17



18



19



20



Sex Chromosomes



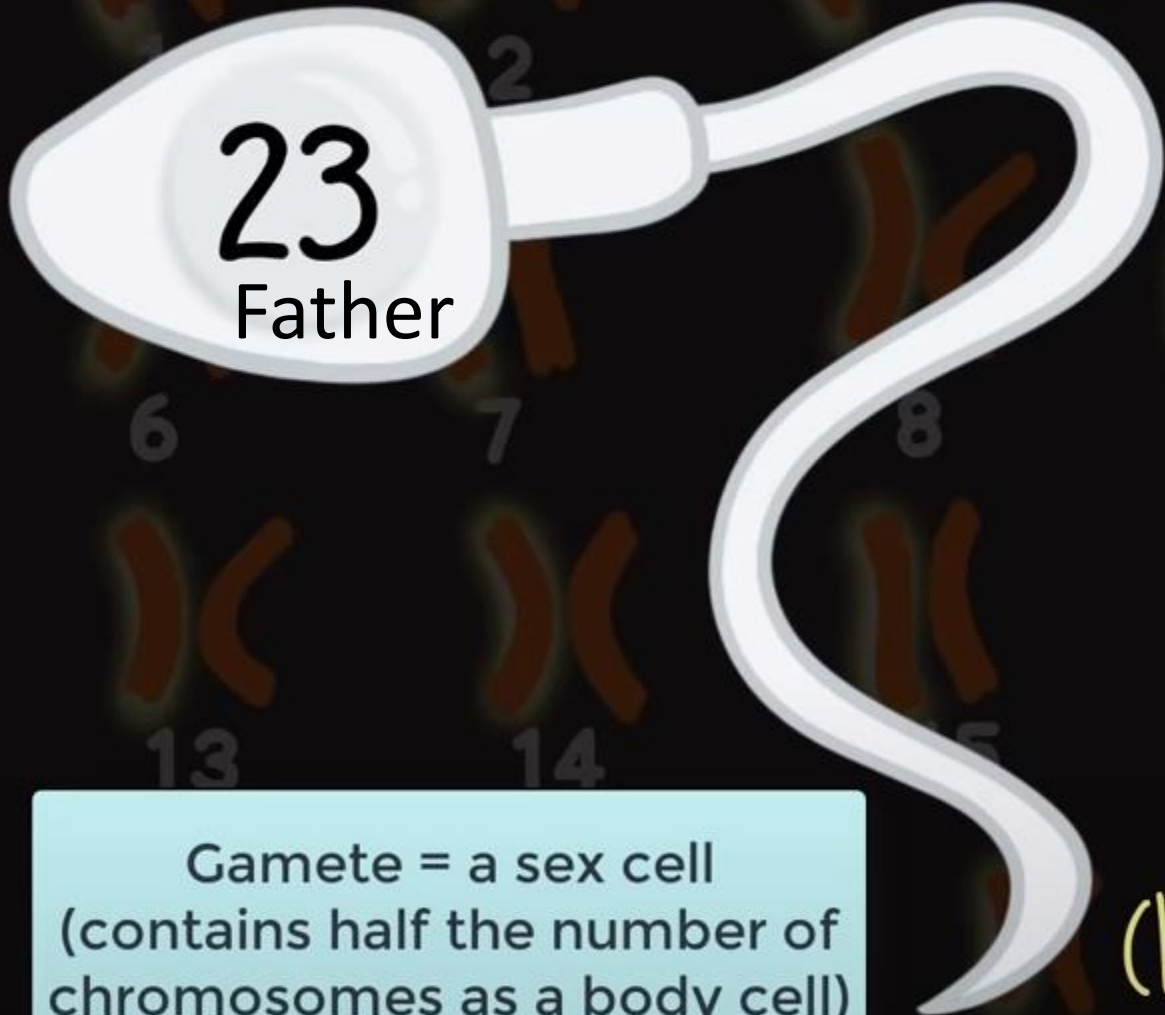
X

Y



Sex Chromosomes

Sperm (haploid)



Mother

(haploid) Egg

Gamete = a sex cell
(contains half the number of
chromosomes as a body cell)

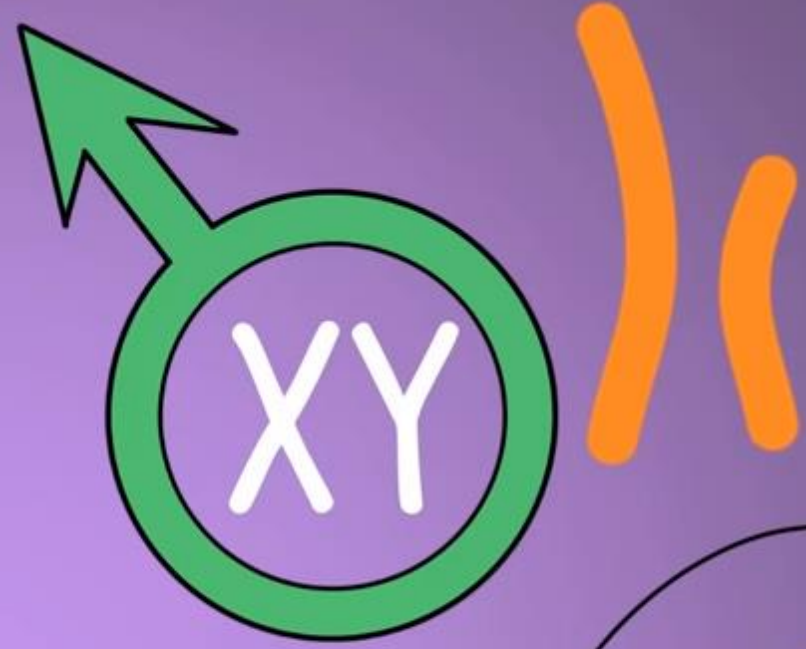
Fertilized Egg (zygote)



2 sets of chromosomes

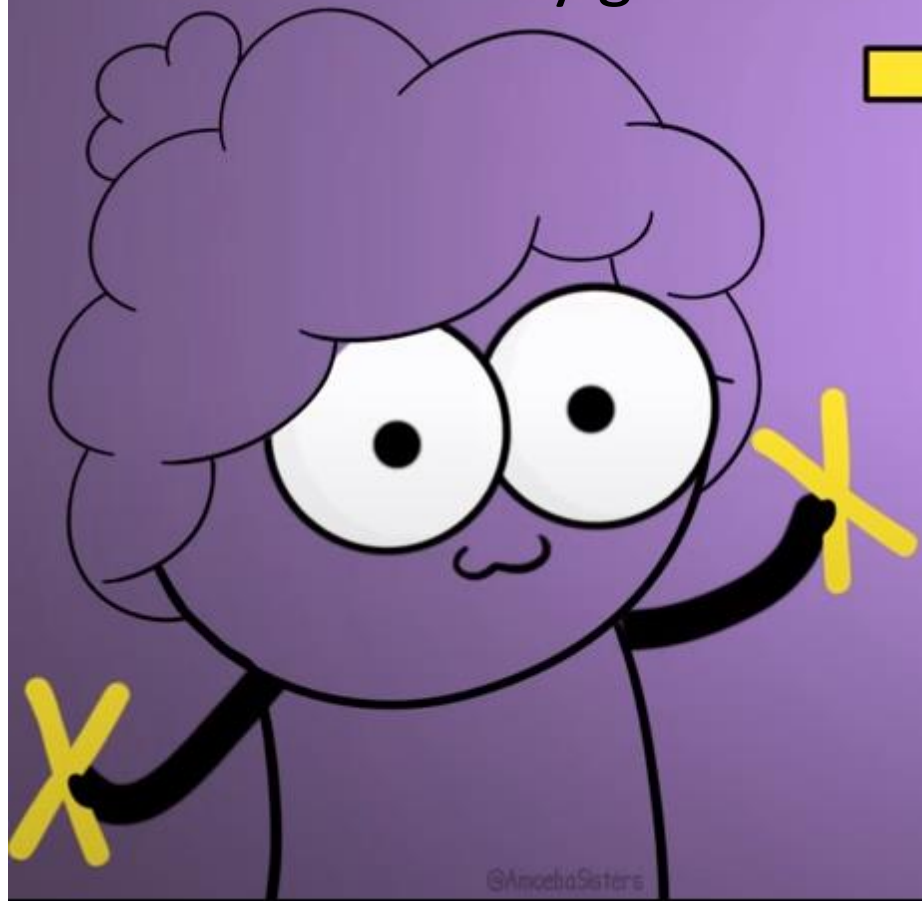


Diploid

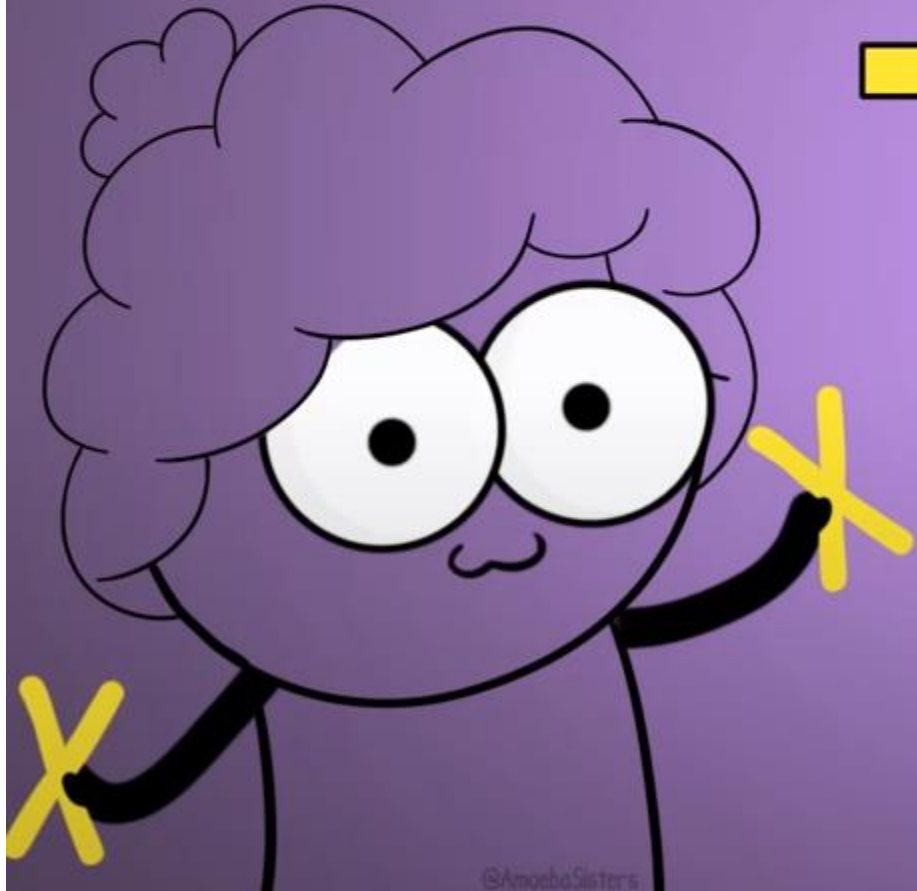
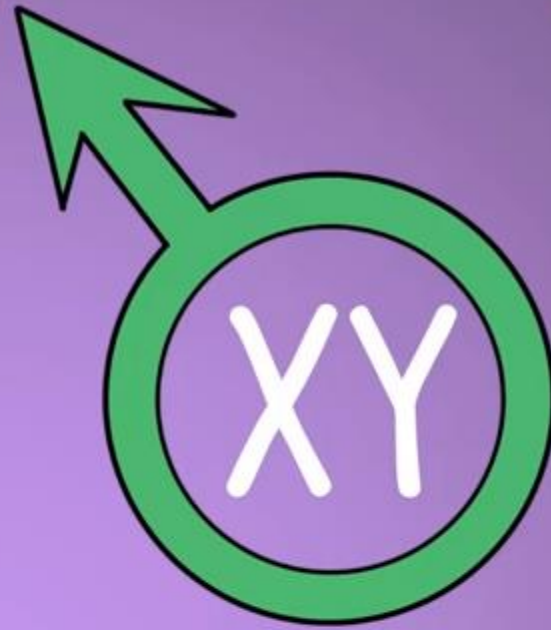


Mothers can only give X's

Fathers can give an X or Y



Fathers determine the biological sex

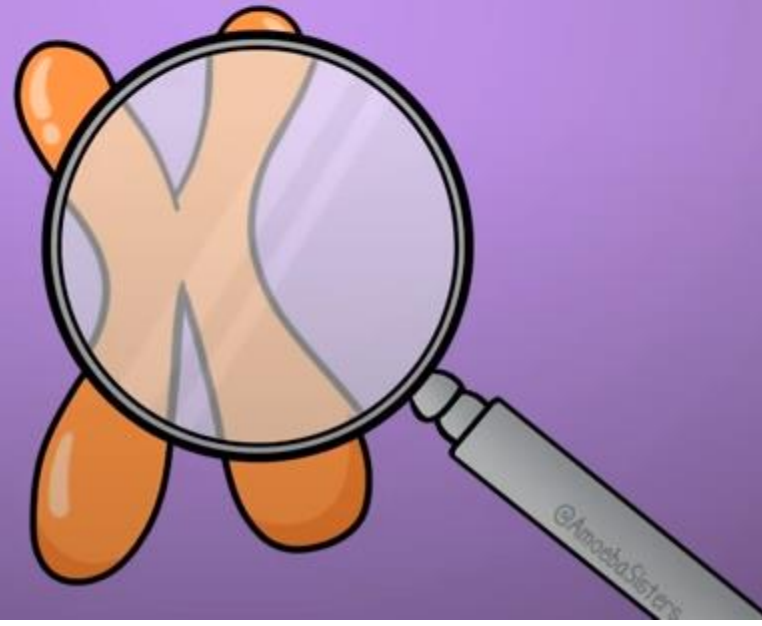


How can karyotypes help?





Karyotypes can
reveal





1



2



3



4



5



6



7



8



9



10



11



12



13



14



15



16



17



18



19



20



21



22



X

Y