chromosome 22 the first in a series of several visual studies using the chromosomes of the human genome. each study will be a computationally-generated printed piece that represents a chromosome of the genome.

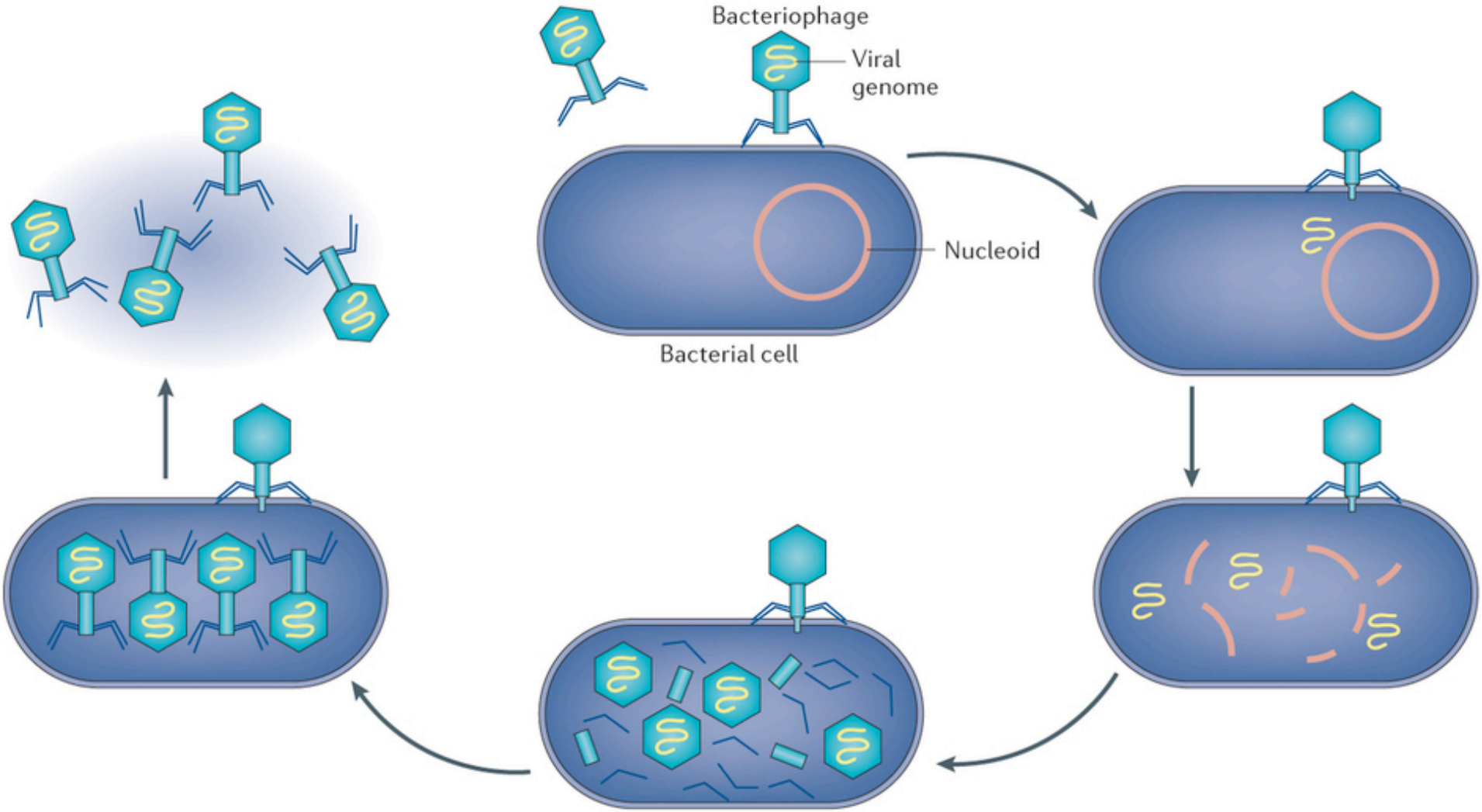
the first piece, which can be seen as part of the background on this page, consists of the letters of the entire chromosome printed in succession, using a three pixel font and a one pixel border. at 150 pixels per inch, this results in an image that's 16 feet wide by about 16 feet long. the text is readable at a short distance and with a bit of squinting.

chromosome numbering i'm beginning with the higher numbered chromosomes, which are the shortest. the first studies are intentionally the most simplistic and least condensed, working towards the longest chromosome (number 1, which is roughly six times larger) the representations will get steadily more intelligent and compact.

process this piece was generated by a java program that parses a fasta format file (commonly used by biologists as a data format for exchange), and generates tiff format images using the data. i developed the font in software, as well as a few routines to write the very large tiff images. these are loaded into photoshop (they're about 2-3 gigabytes of data to start). unfortunately, photoshop has a limitation of 30,000 pixels in either direction, forcing me to chop the images into sections. tiff also has limitations in this area (2 gigabytes per file, i believe). this is somewhat disappointing or frustrating.

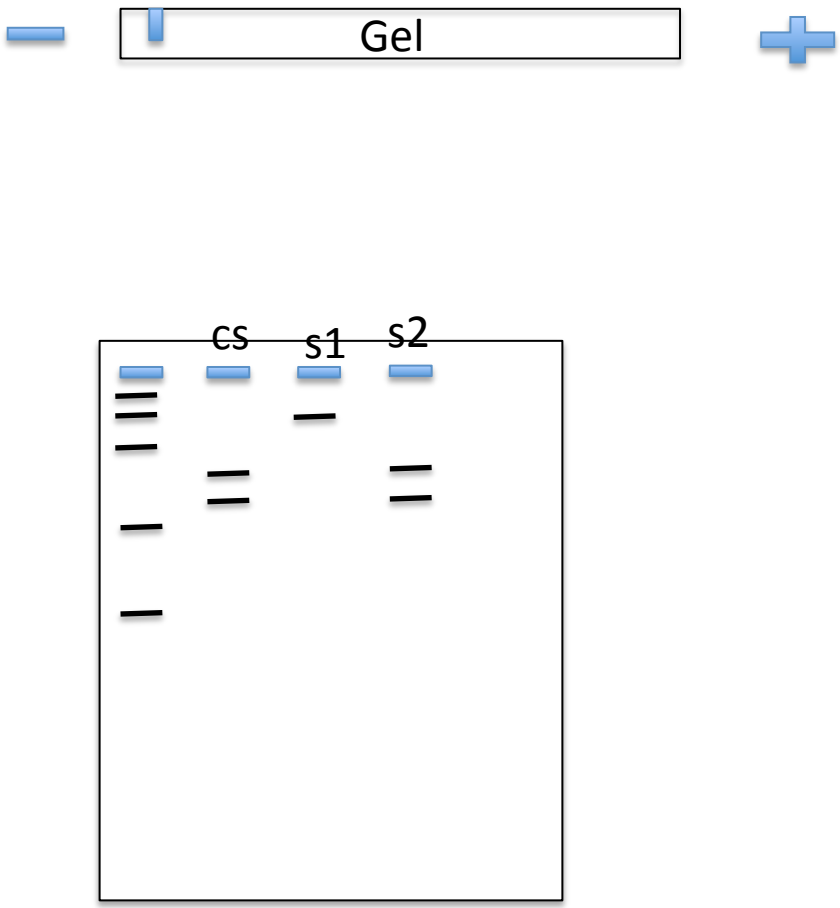
i wanted a sense of the scale of the data on a single chromosome. i originally [illegible] illegible, and did little to convey scale, because it just looked like "too many small things to see." when one hears that there are '3 billion letters' of genetic code

http://benfry.com/chr22/


Bacteriophage
Viral genome
Nucleoid
Bacterial cell

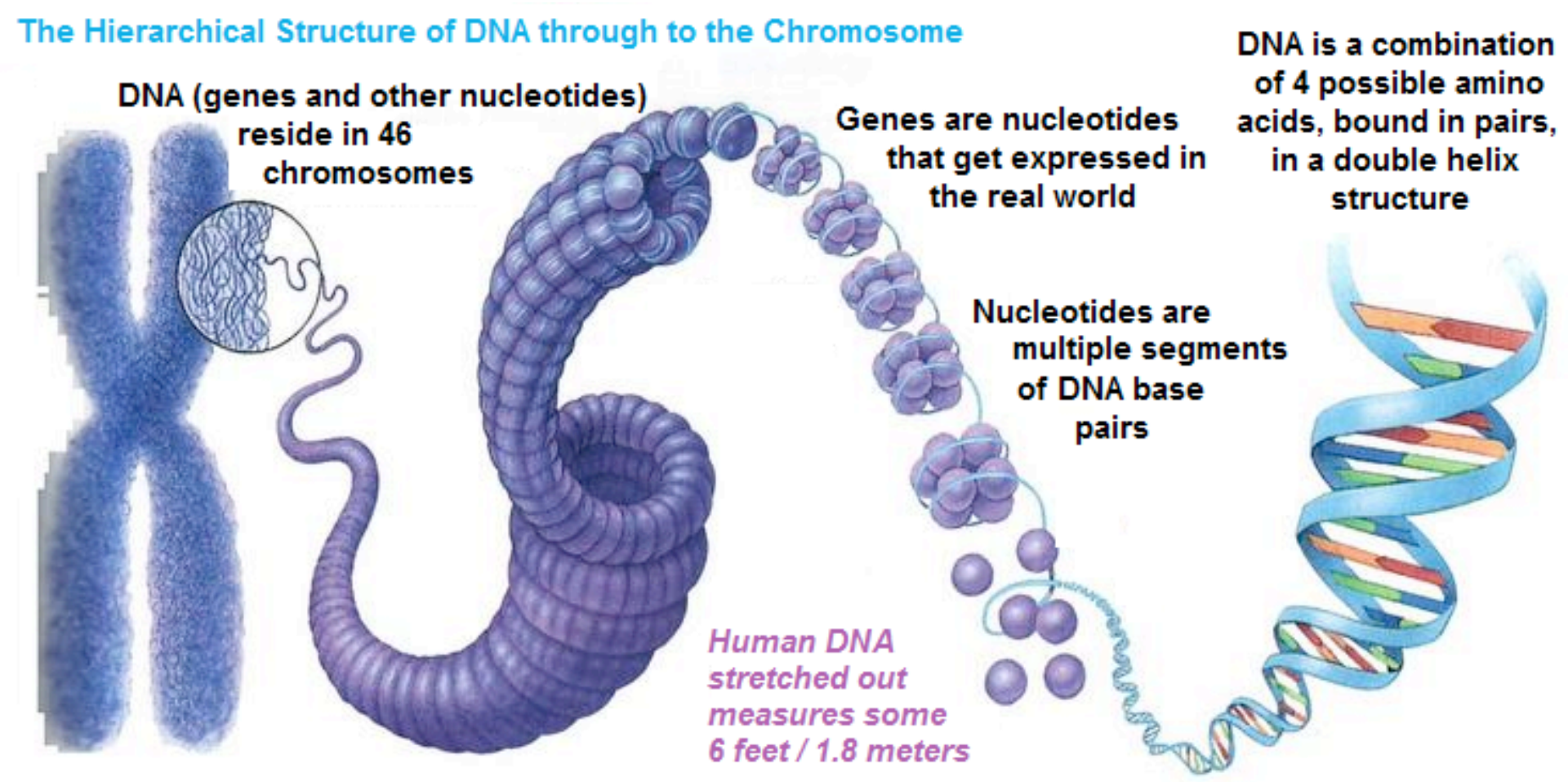
Using a micropipette

- https://www.youtube.com/watch?v=352RiEMekJU

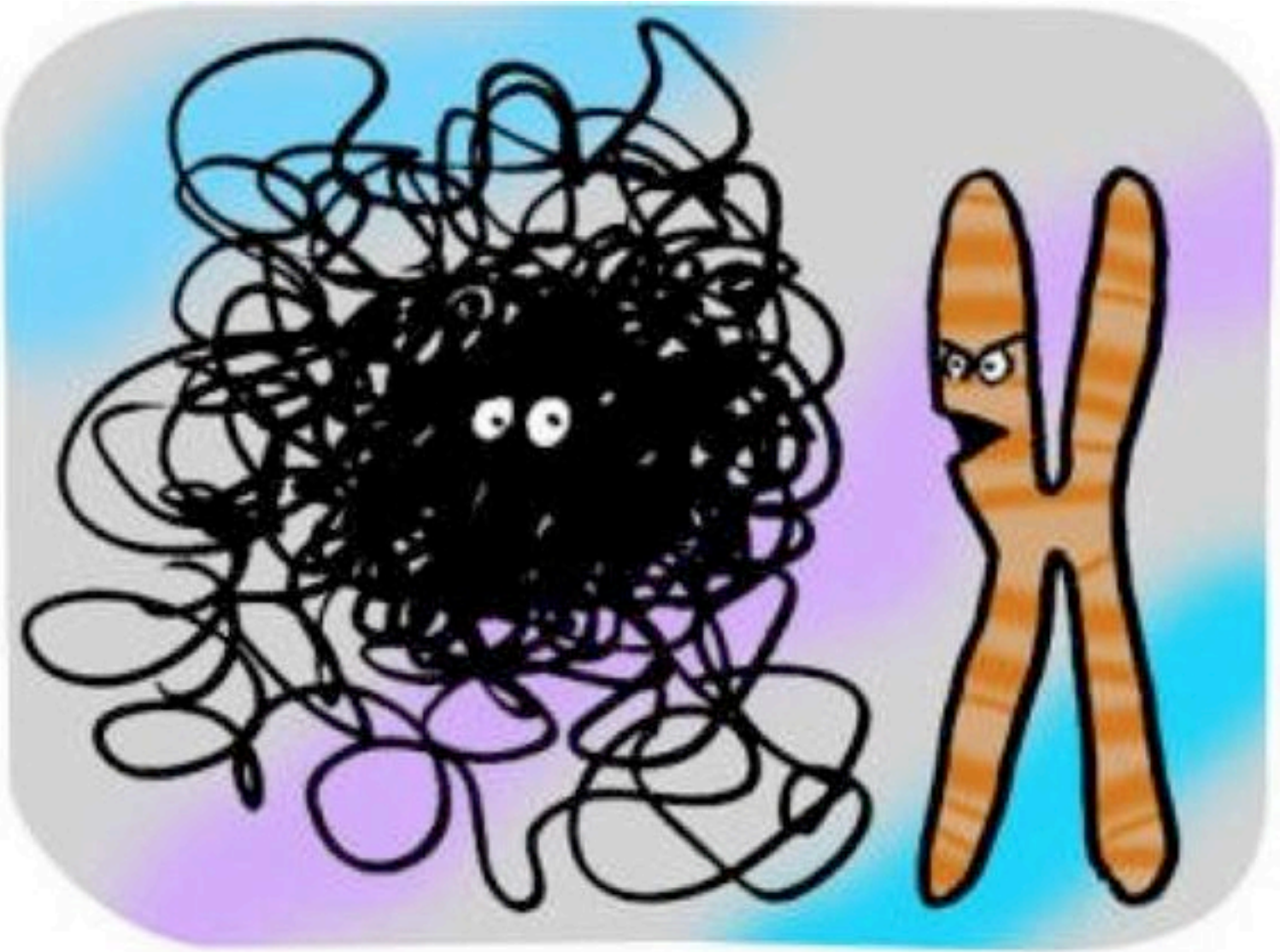

Gel
cs
s1
s2

Loading an agarose gel

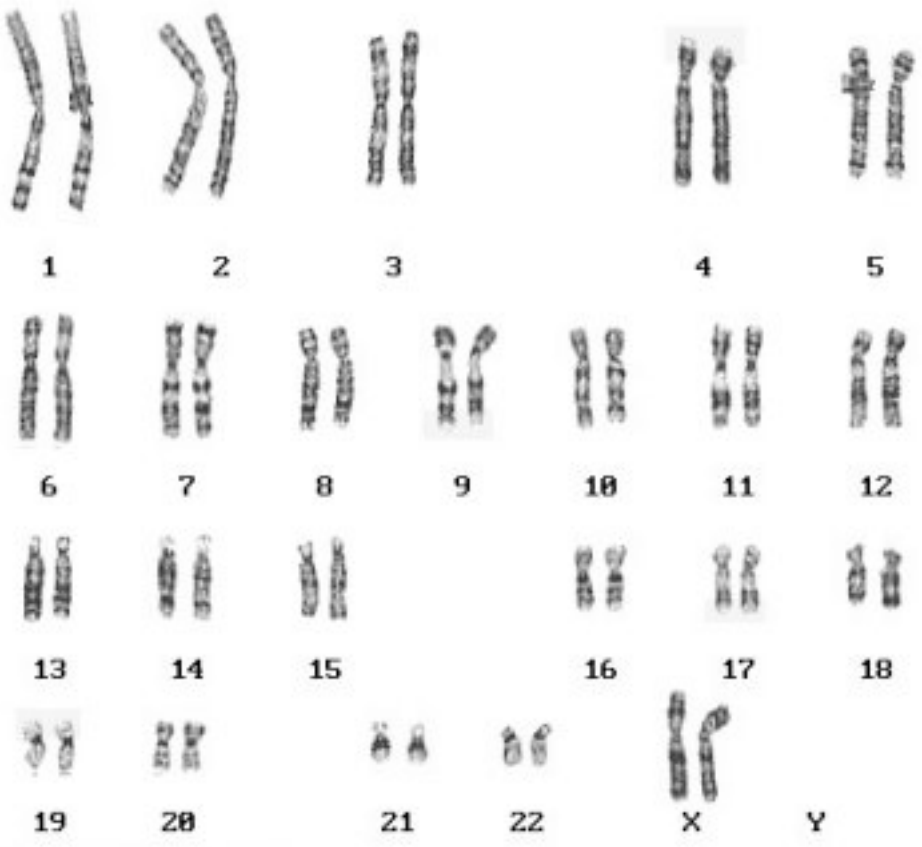
- https://www.youtube.com/watch?v=Wwgs-FjvWlw



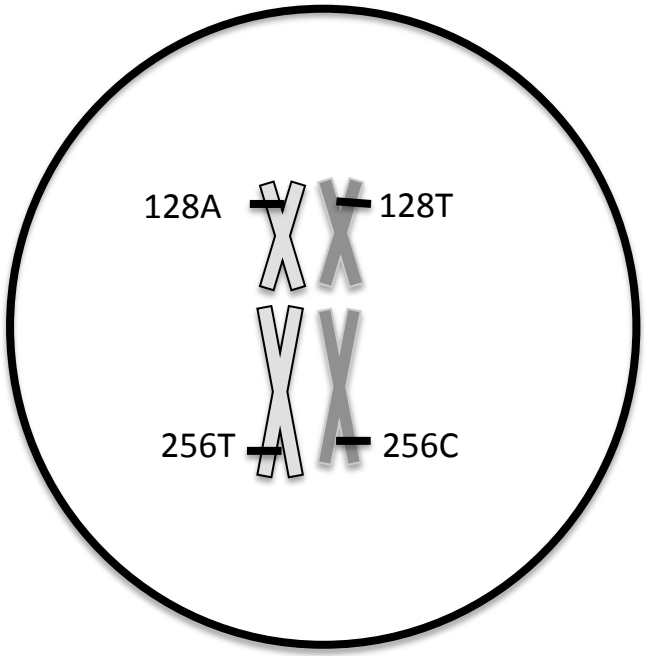
https://pmgbiology.com/tag/3-27/

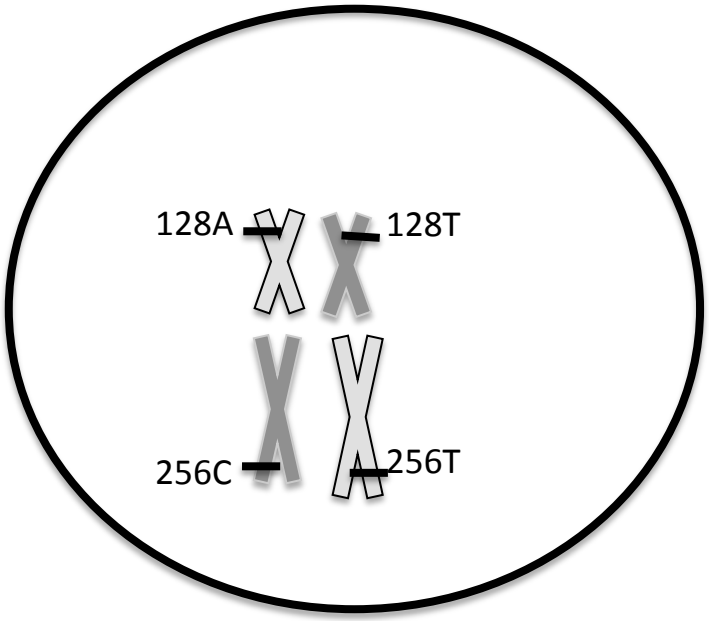


Dude, mitosis starts in five minutes...
I can't believe you're not condensed yet.

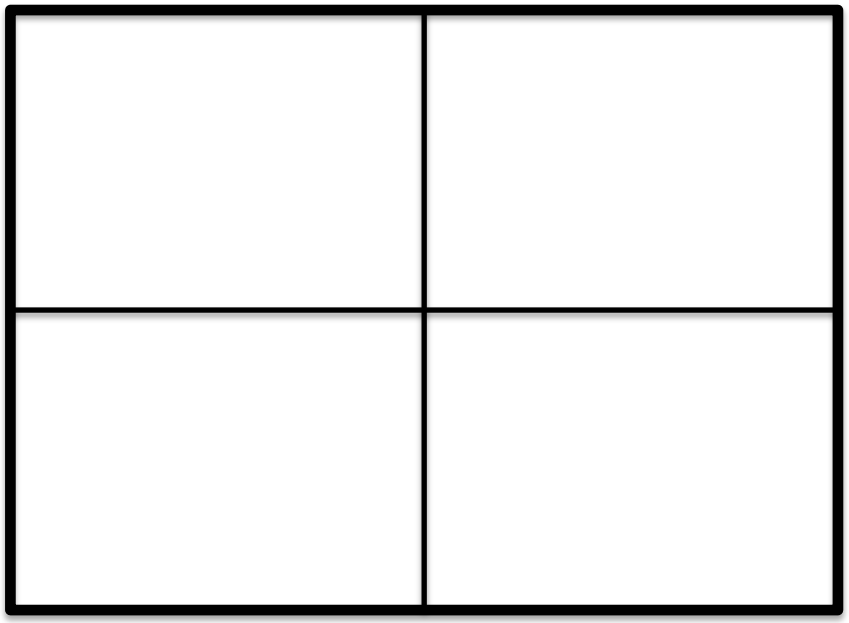


http://www.daviddarling.info/encyclopedia/K/karyotype.html


128A
128T
256T
256C

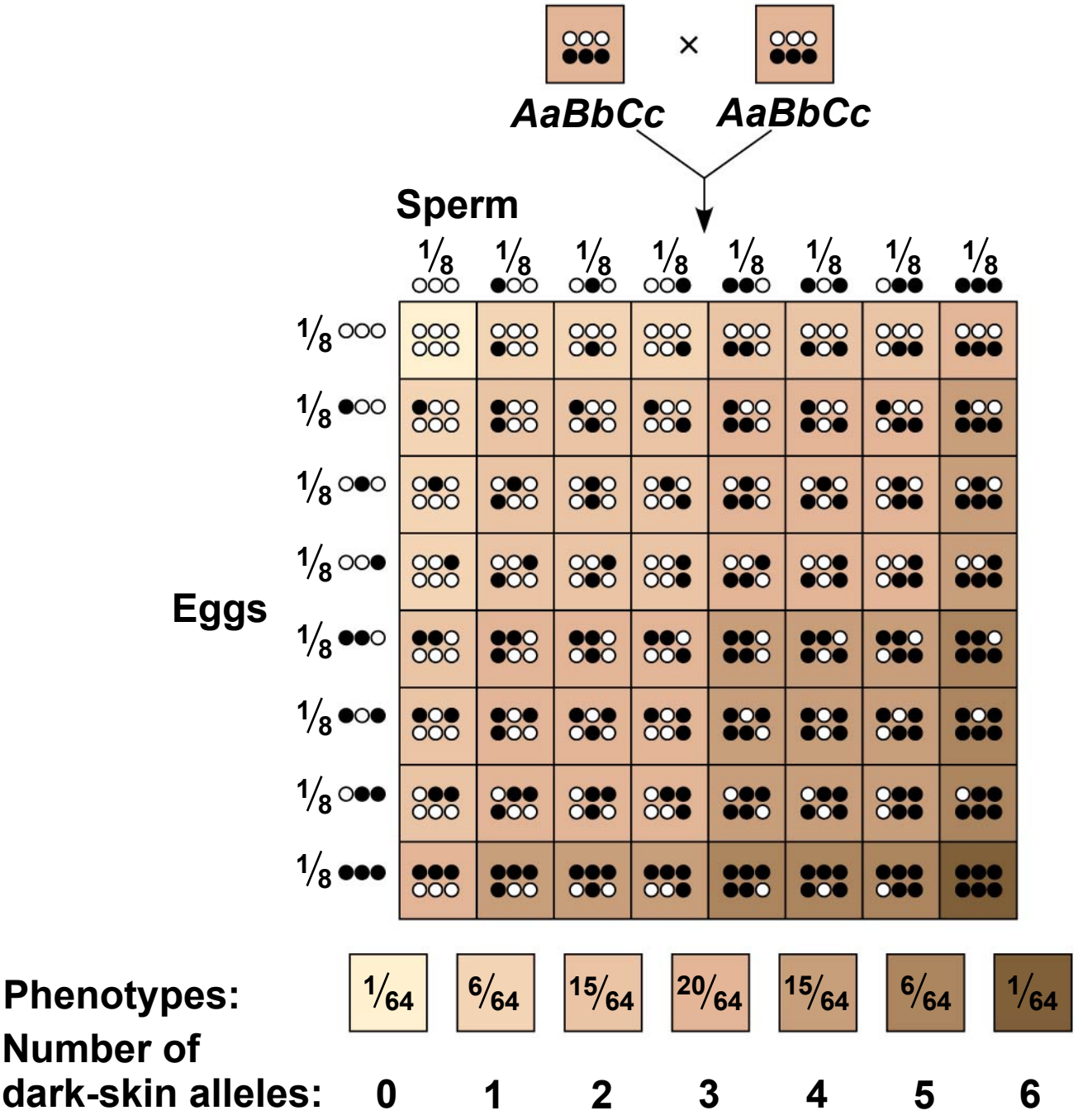

128A
128T
256C
256T

Dad’s sperm



Mom’s egg

Figure 11.13


AaBbCc
×
AaBbCc
Sperm
1/8
Eggs
Phenotypes:
1/64
6/64
15/64
20/64
15/64
6/64
1/64
Number of dark-skin alleles:
0
1
2
3
4
5
6