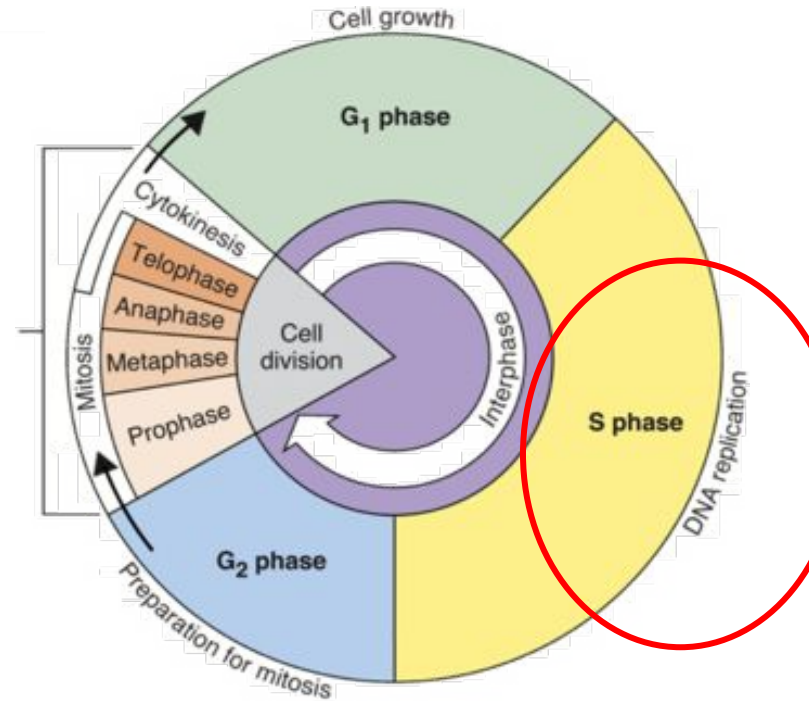
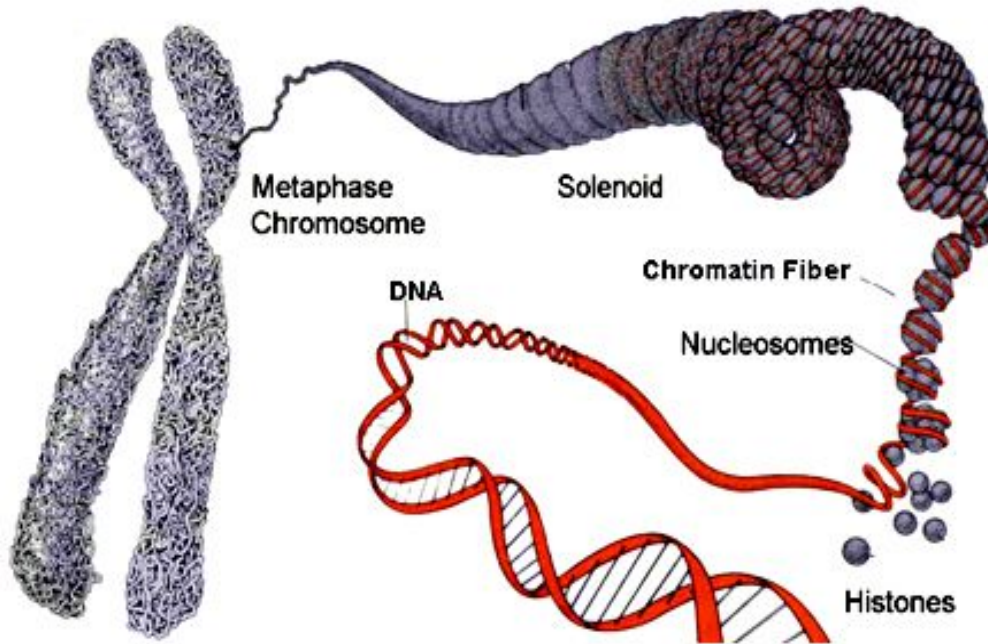


# Chapter 12.2: Chromosomes and DNA Replication

Chromosomes are made of chromatin.

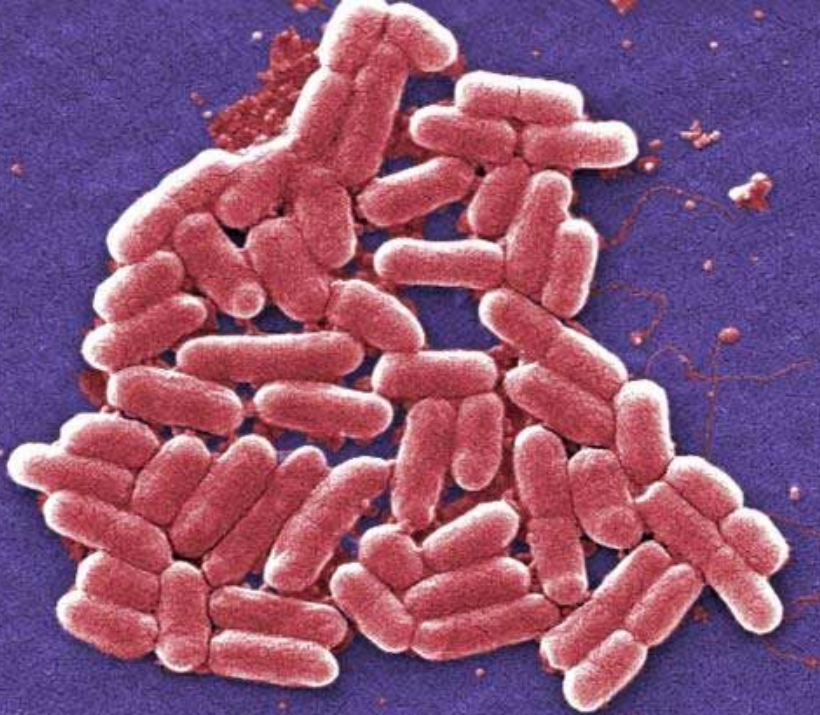
**Chromatin:** DNA tightly coiled around proteins called histones

**Nucleosomes** : bundles of chromatin



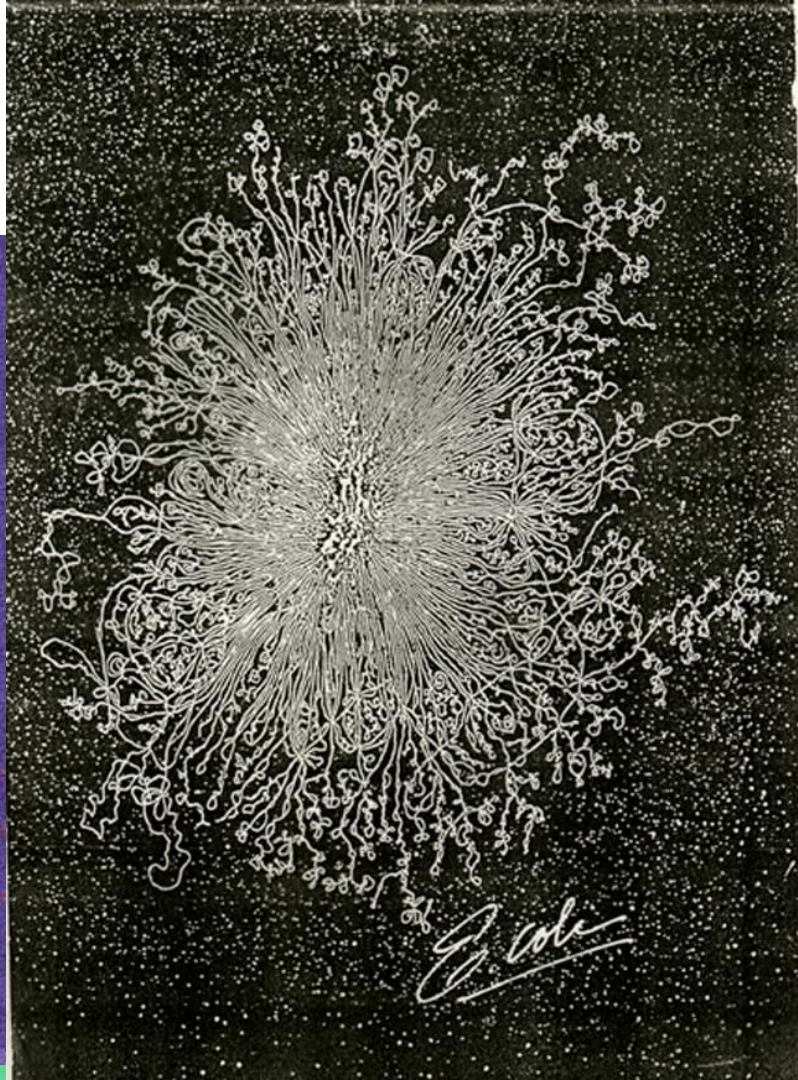
# DNA molecules are surprisingly long!

The DNA must fit into a space 1/1000th its size!



Acc.V Spot Magn Det WD Exp |-----| 5 μm  
30.0 kV 3.0 6836x SE 8.4 3

CDC image 10068



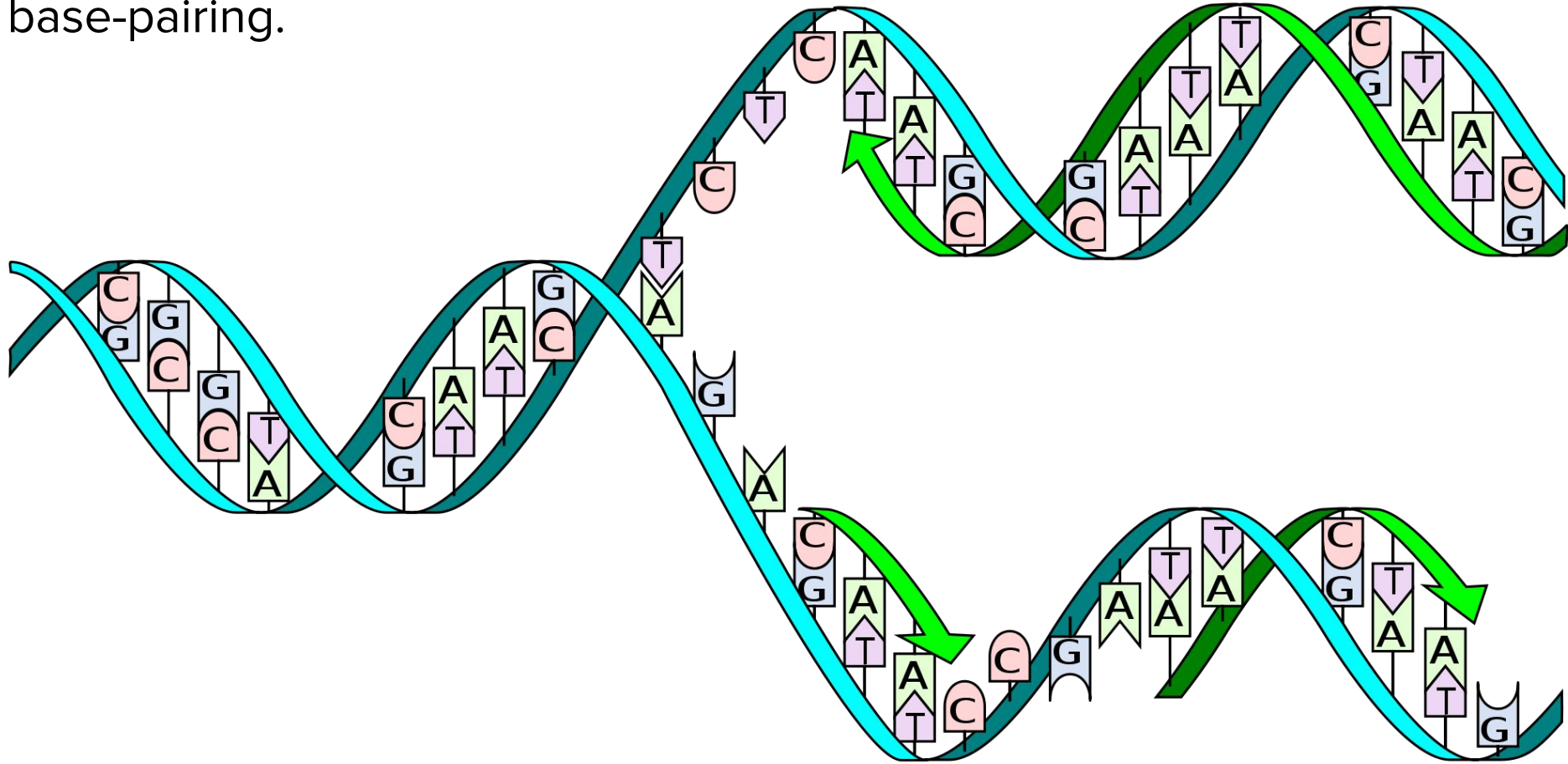


$2.0 \times 10^{13}$  meters  
=  
66 round trips  
to the Sun  
=  
The length of an  
adult's DNA



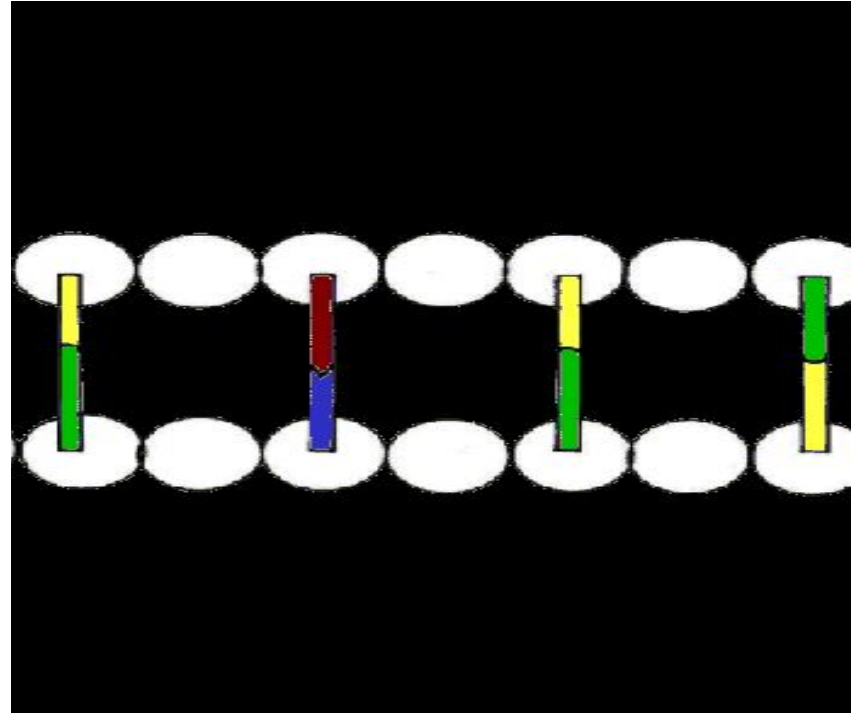
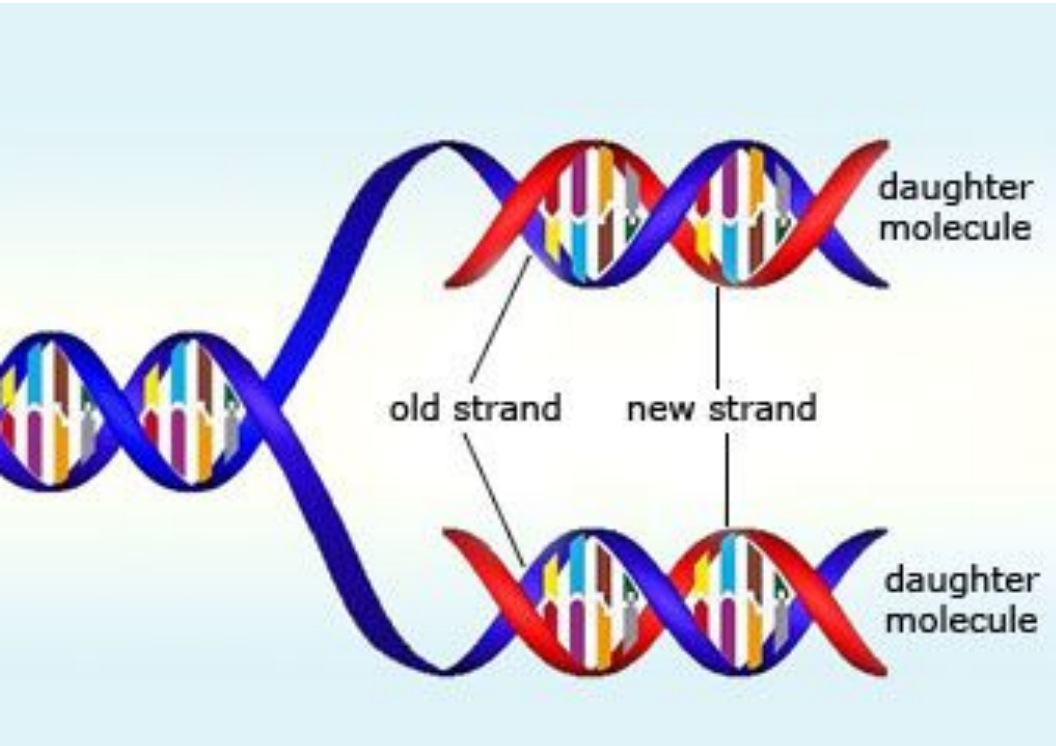
[DNA Wrapping](#)

If a DNA molecule were separated, it could be reconstructed by base-pairing.



**Replication**: the process of DNA duplication

**Replication forks**: sites where separation and replication occur



**Helicase**: the enzyme which separates the DNA

**DNA polymerase**: the enzyme which rebuilds the new strands

