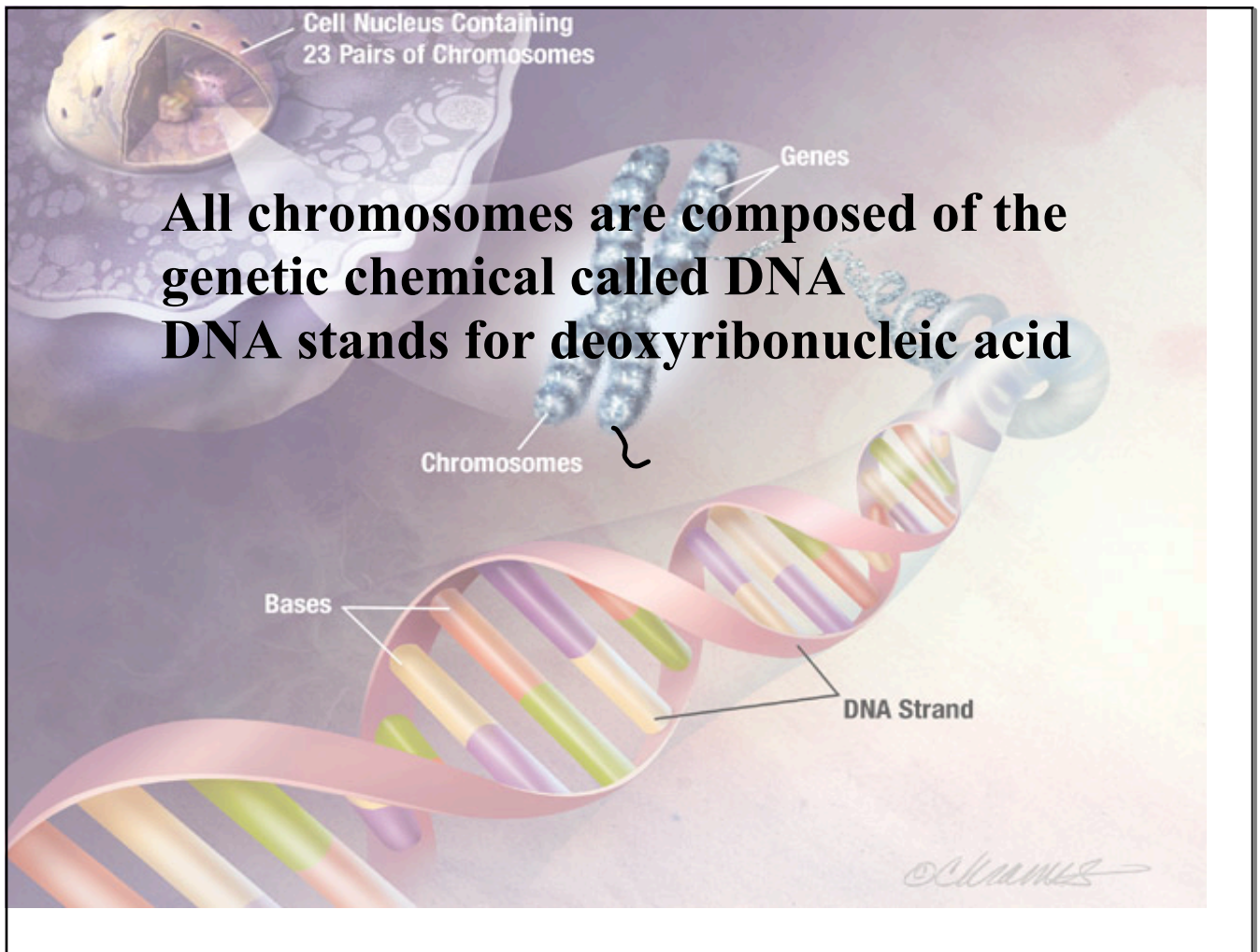


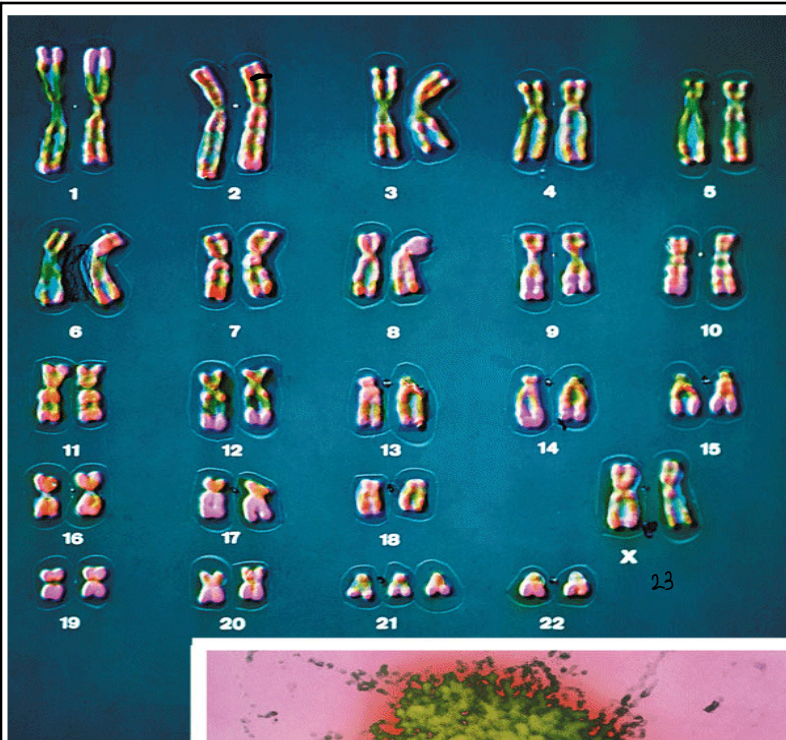
Chapter 6

A Closer Look at Cell Division

DNA: The Genetic Material

DNA is the genetic material found in the chromosomes of a cell. It contains all the information that determine how cells function and respond to their environment.





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Nature 405, 283-284 (2000)
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- Chromosomes exist in “matching pairs” in the nucleus of a cell
- Scientists call the matching pairs “homologous pairs”.
- In every human body cell, there are 23 homologous pairs of chromosomes

IN HUMANS

Pair # 1- 22 = "autosomes"

Pair #23 =

"Sex chromosomes"

* XX = **G**

* XY = **B**

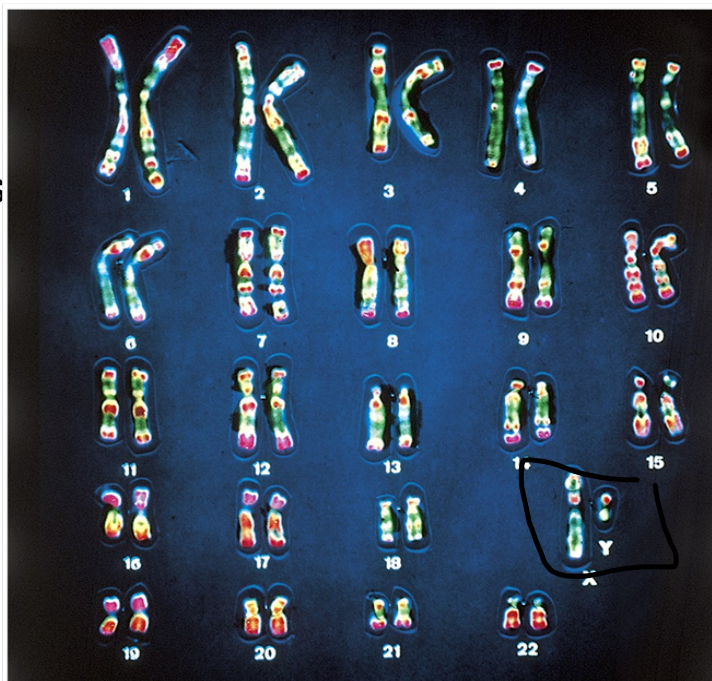


Figure 9-1 Biology: Understanding Life 1/e

Humans have 46 chromosomes which contain 100 000 genes and 6 billion nitrogen bases.

DNA is made up of a series of chemicals called nitrogen bases

Nitrogen bases:

A - Adenine

T - Thymine

C - Cytosine

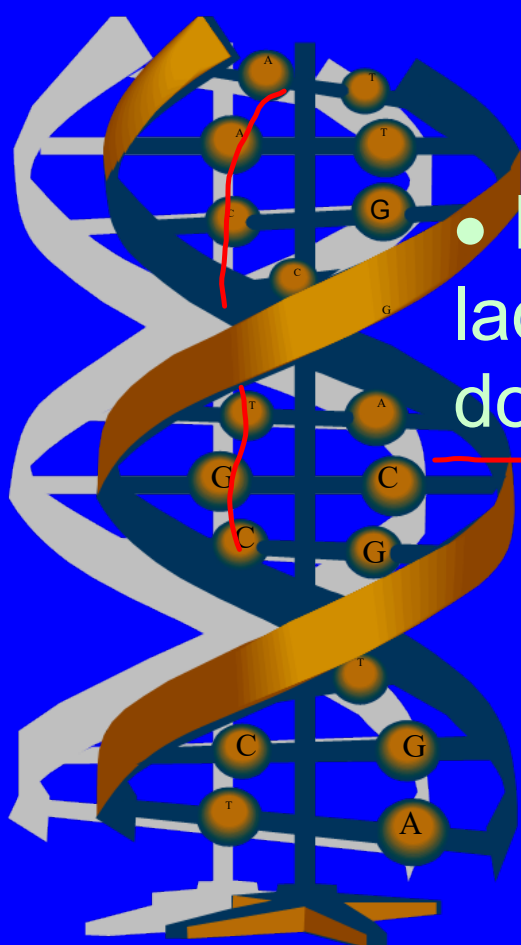
G - Guanine

pair up

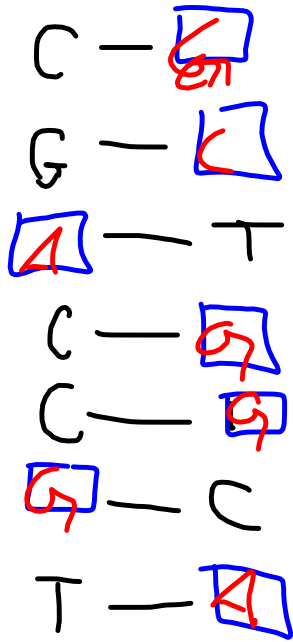
pair up

DNA uses these four letter as codes to make up the nitrogen base. The order that the bases appear in is the code.

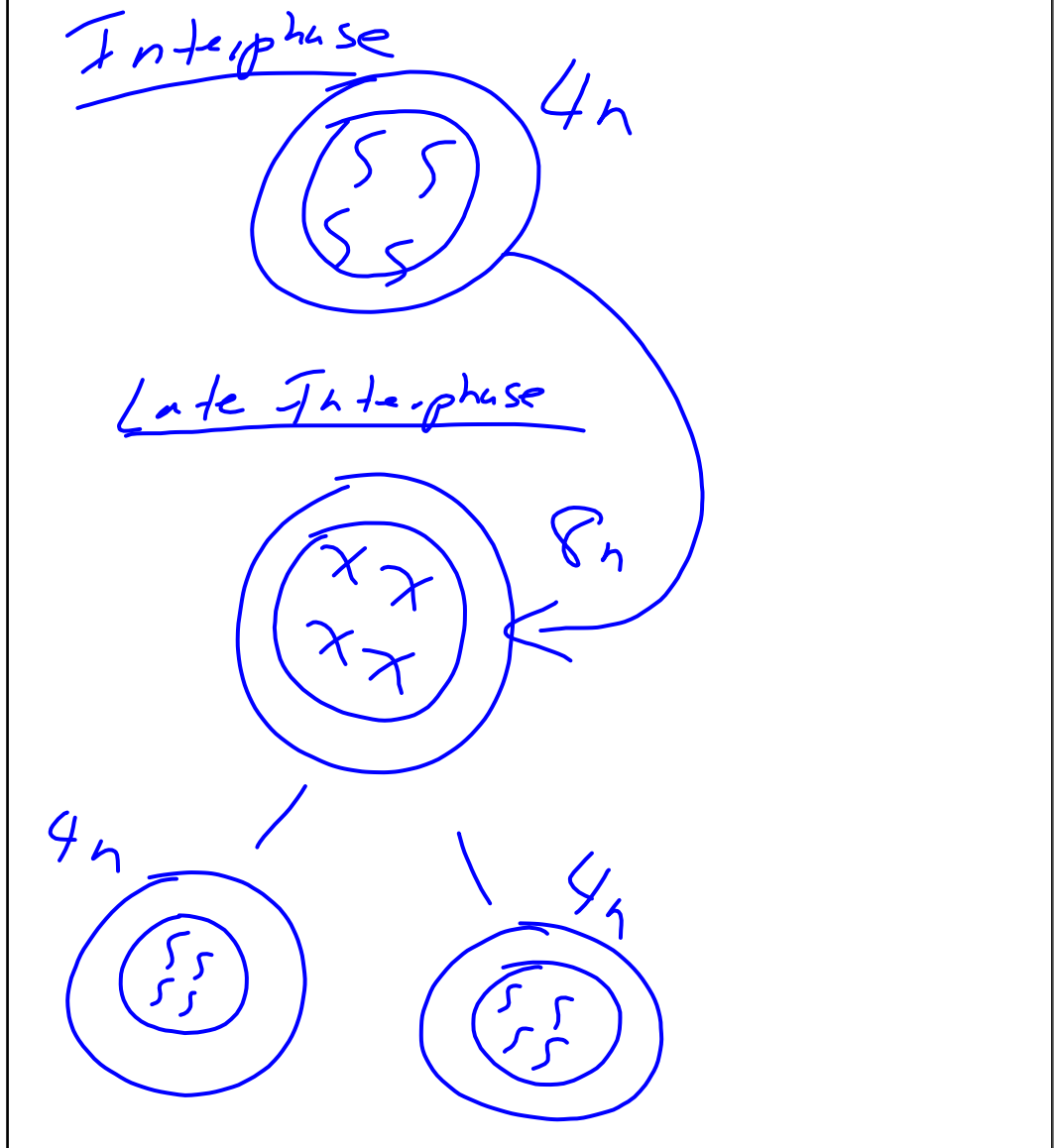
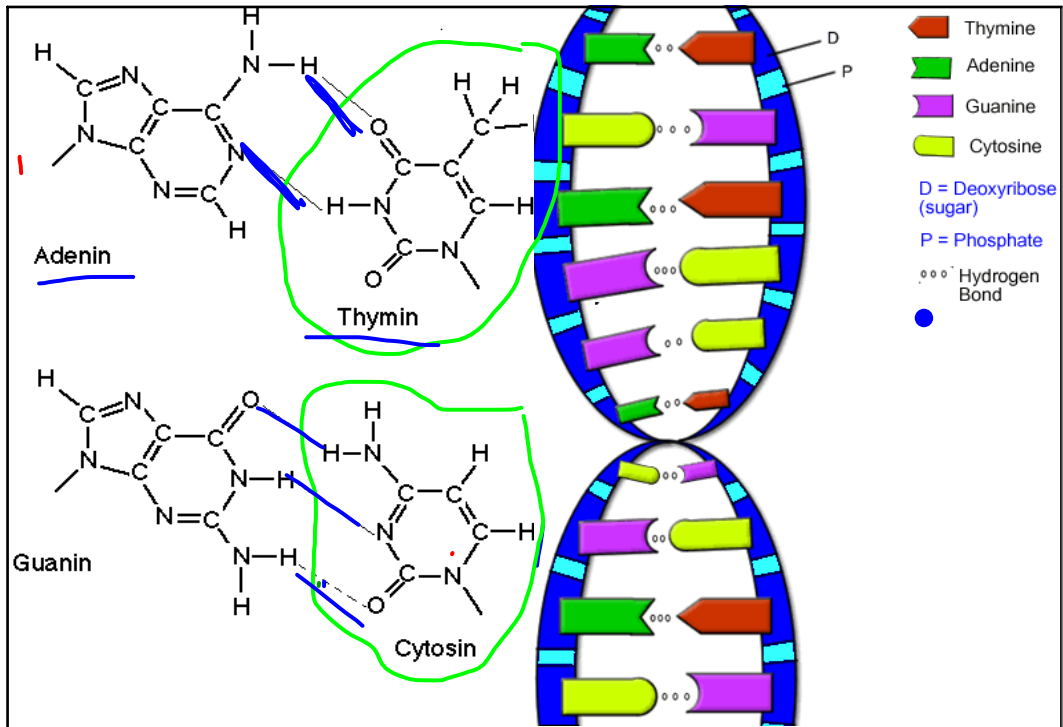
What does DNA look like?

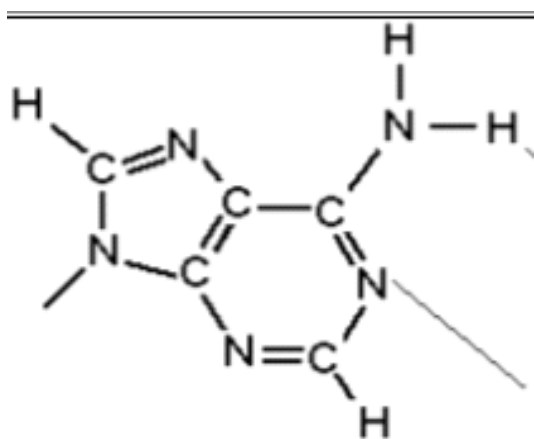


- DNA looks like a twisted ladder, also known as a double helix.

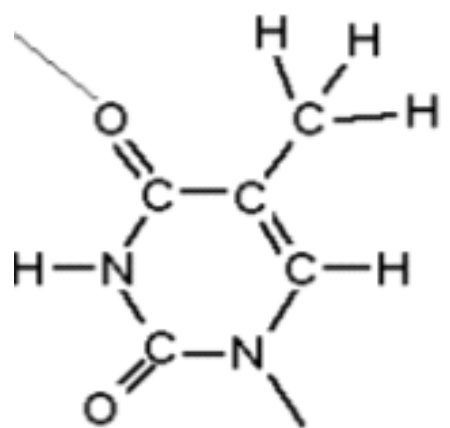


A - T → Complimentary
T - A Strand
G - C
C - G
A - T
T - A
A - T
C - G

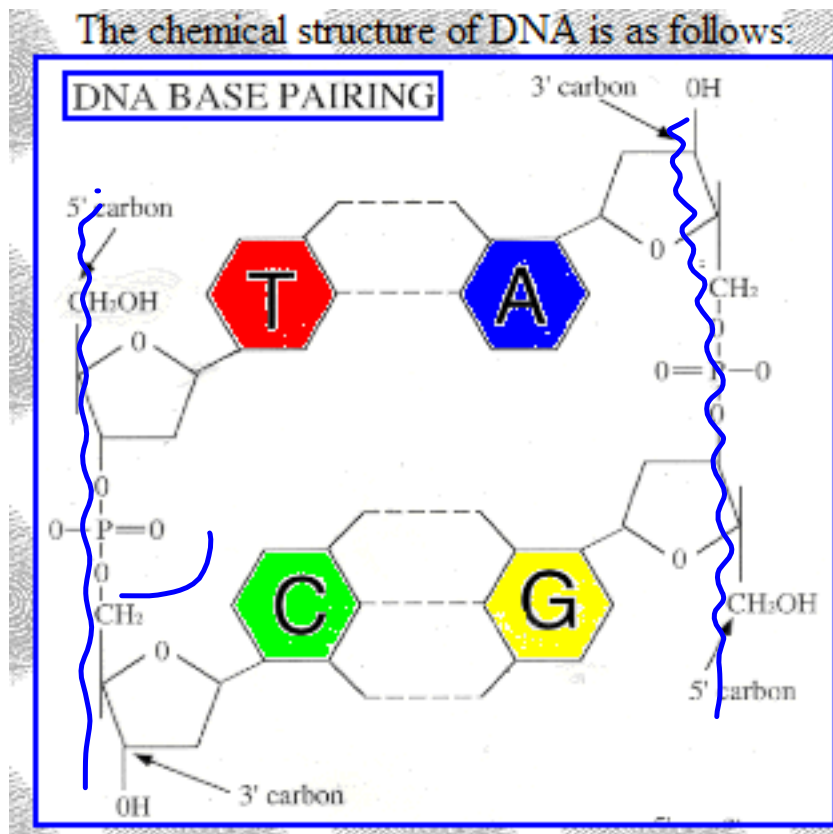




Adenin



Thymin



5' T-T-G-A-C-T-A-T-C-C-A-G-A-T-C 3'
3' A-A-C-T-G-A-T-A-G-G-T-C-T-A-G 5'

Fun Fact

- If you unravelled all your chromosomes from all of your cells and laid out the DNA end to end, the strands would stretch from the Earth to the Moon about 8,000 times. (23)

https://www.youtube.com/watch?v=1vm3od_UmFg

Discovery of DNA Video (17 Min)

Extract DNA from Strawberries

<https://www.youtube.com/watch?v=hOpu4iN5Bh4>