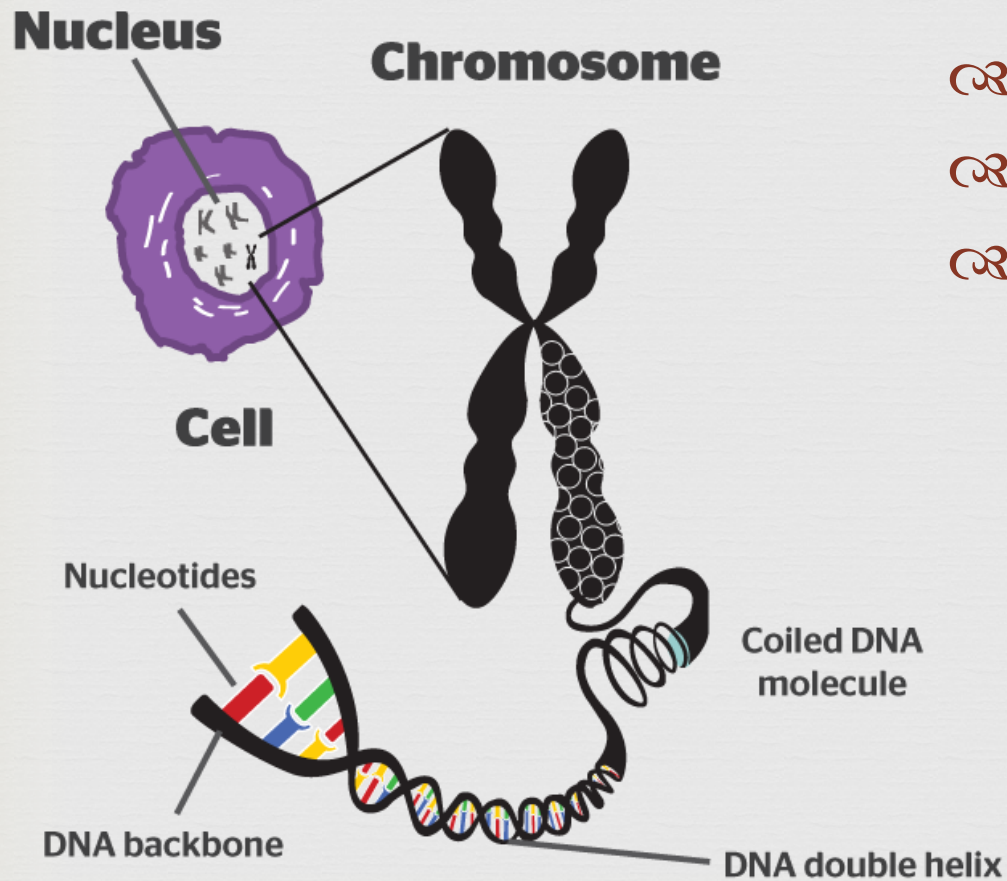


What Do Genes Look Like?

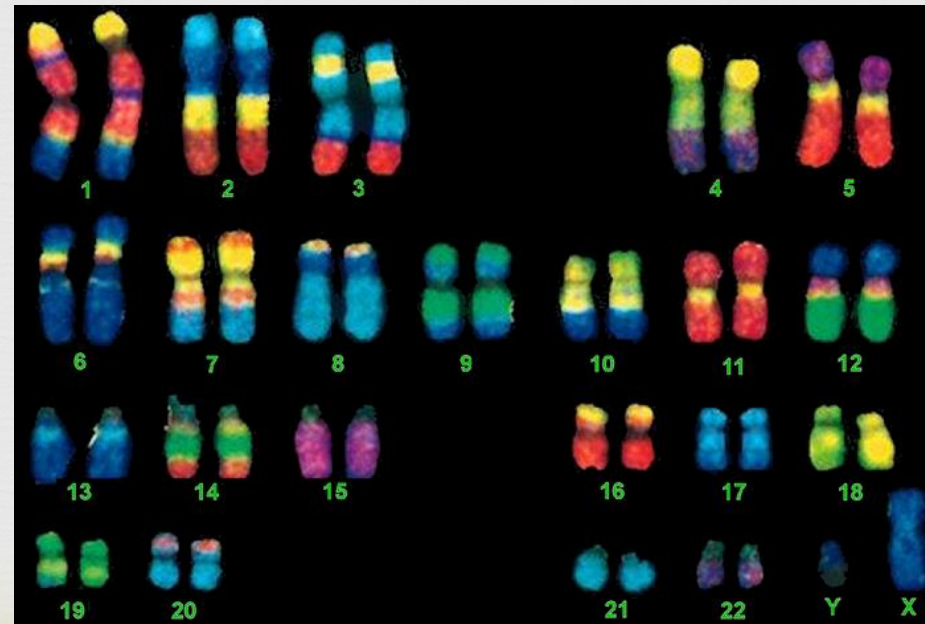


Pg128-135

Chromosomes



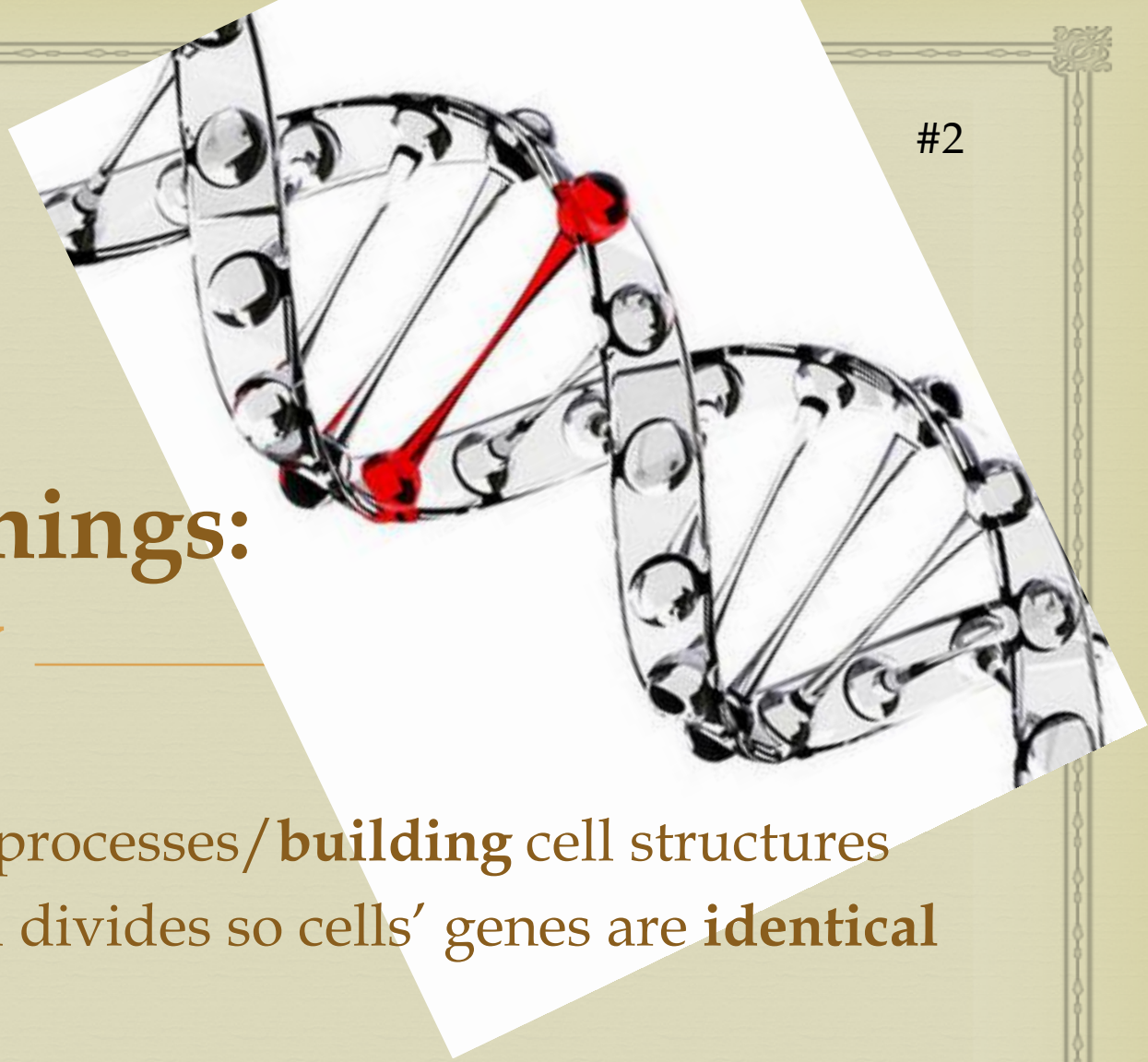
- ☞ Genes are located on chromosomes
- ☞ Made of protein and DNA
- ☞ DNA= deoxyribonucleic acid

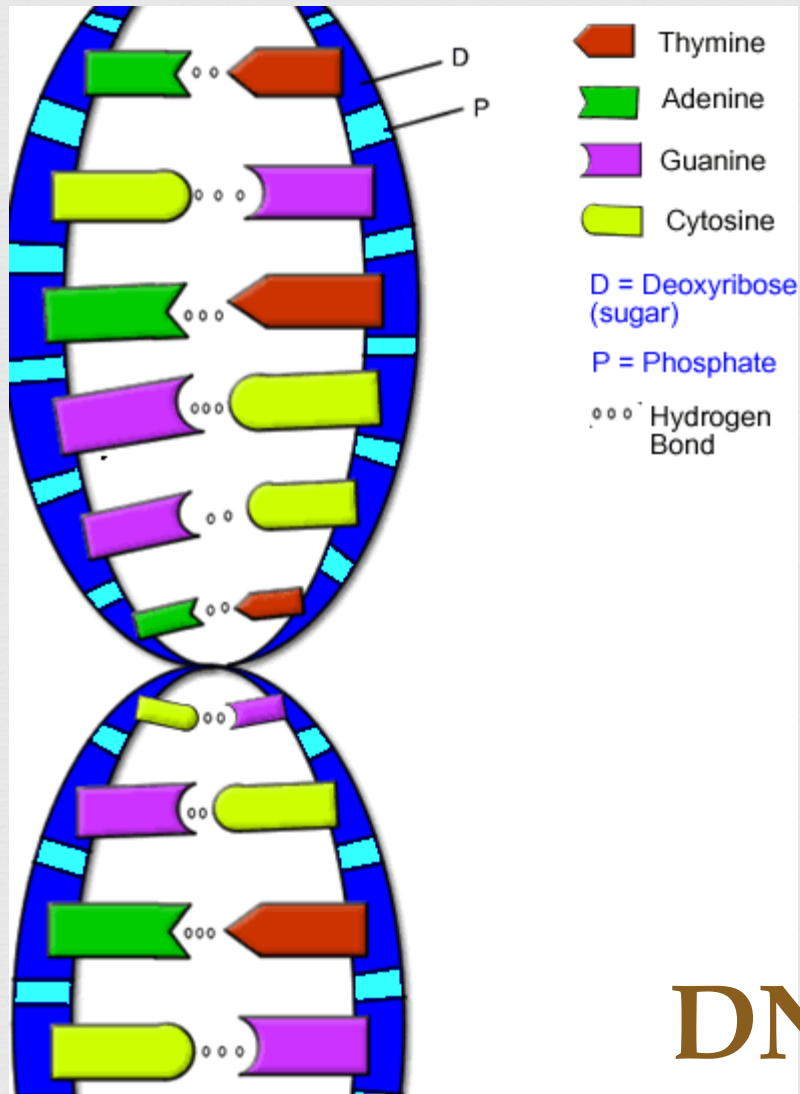


DNA must do two things:



- Be able to **give instructions** for cell processes/**building** cell structures
- Be able to be **copied each time** a cell divides so cells' genes are **identical**





☞ Made of four subunits
(nucleotides)

☞ Adenine

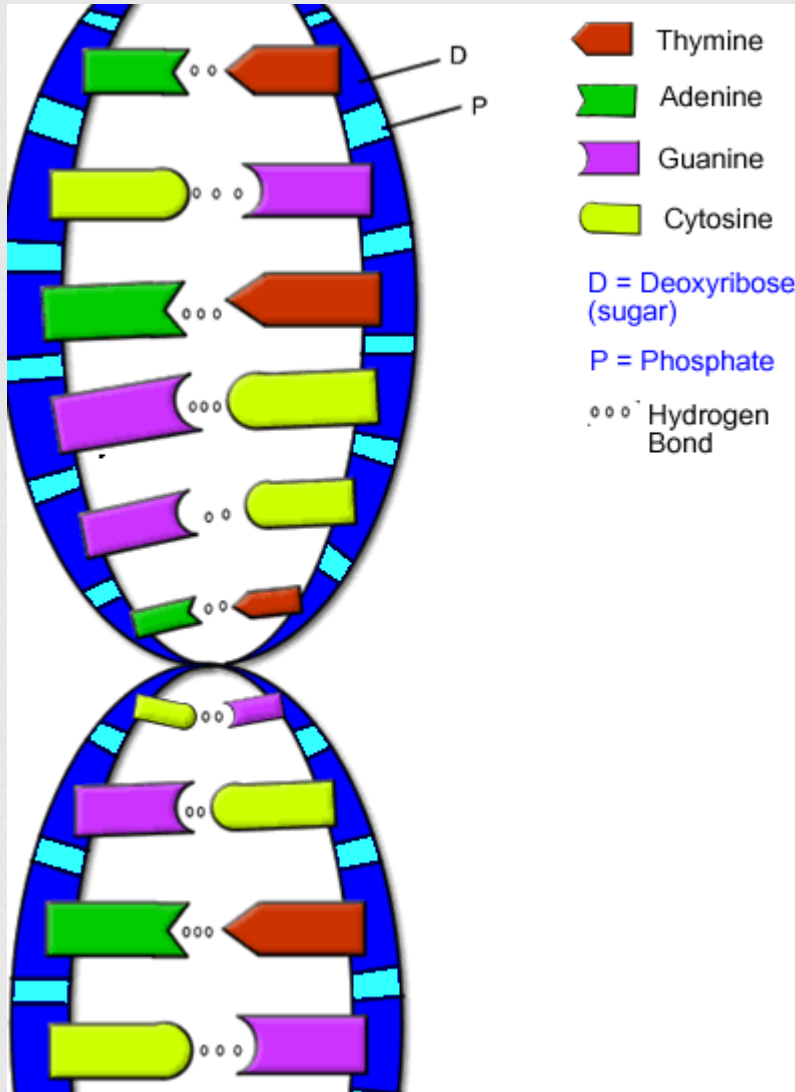
☞ Thymine

☞ Guanine

☞ Cytosine

☞ Each is a slightly different shape

DNA- a closer look



Nucleotides

The rungs of the twisted ladder

☞ a sugar

☞ a phosphate

☞ a base

Chargaff's Rules



∞ The amount of adenine in DNA always equals the amount of thymine

∞ The amount of guanine always equals the amount of cytosine.

What does this mean?

AT always together

CG always together

Taking a Picture of DNA

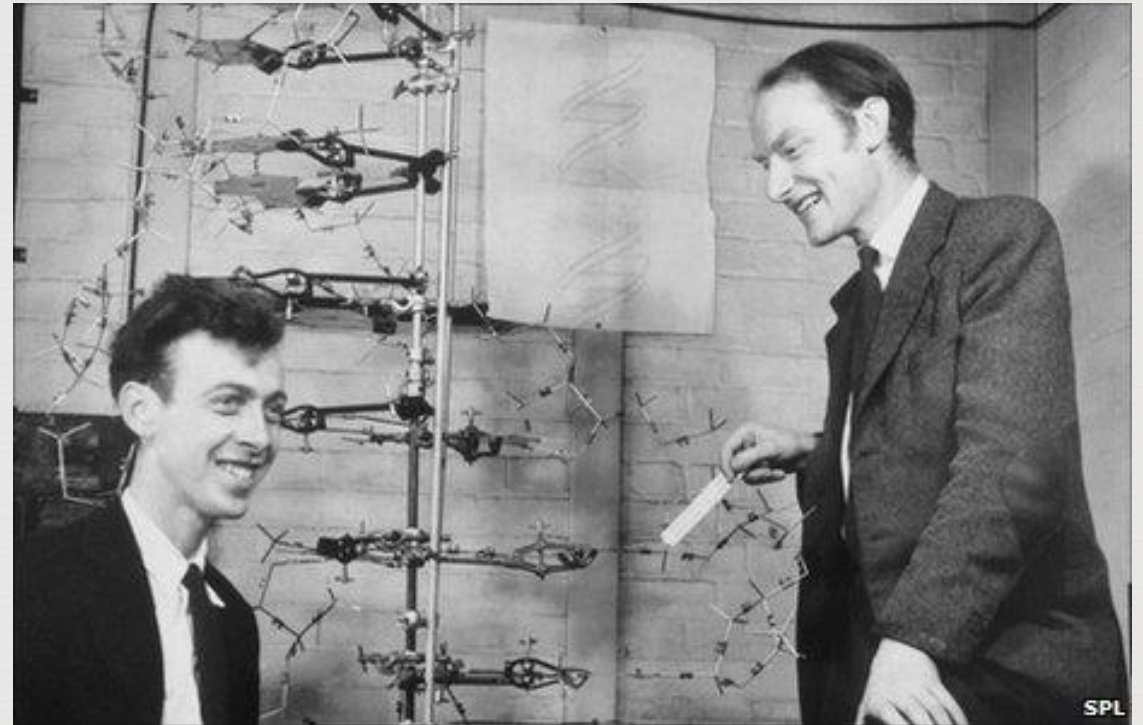


Rosalind Franklin X-ray Diffraction

- ❧ X rays bombard the DNA molecule
- ❧ X ray hits a particle and bounces off
- ❧ Creates a pattern caught on film

Result: Spiral shaped?

Enter: Watson and Crick



(A)

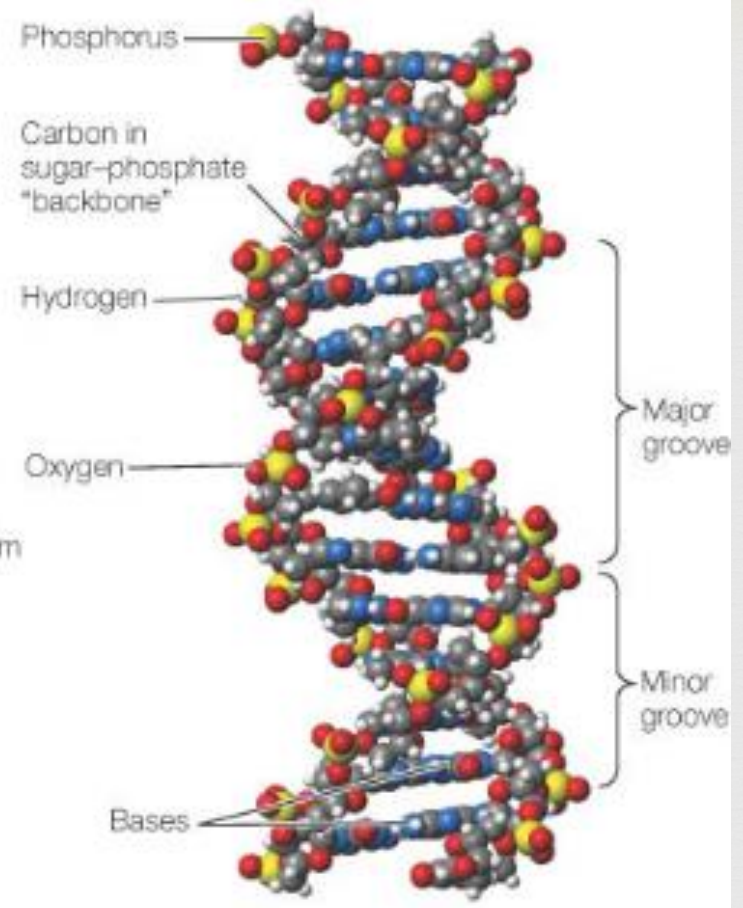
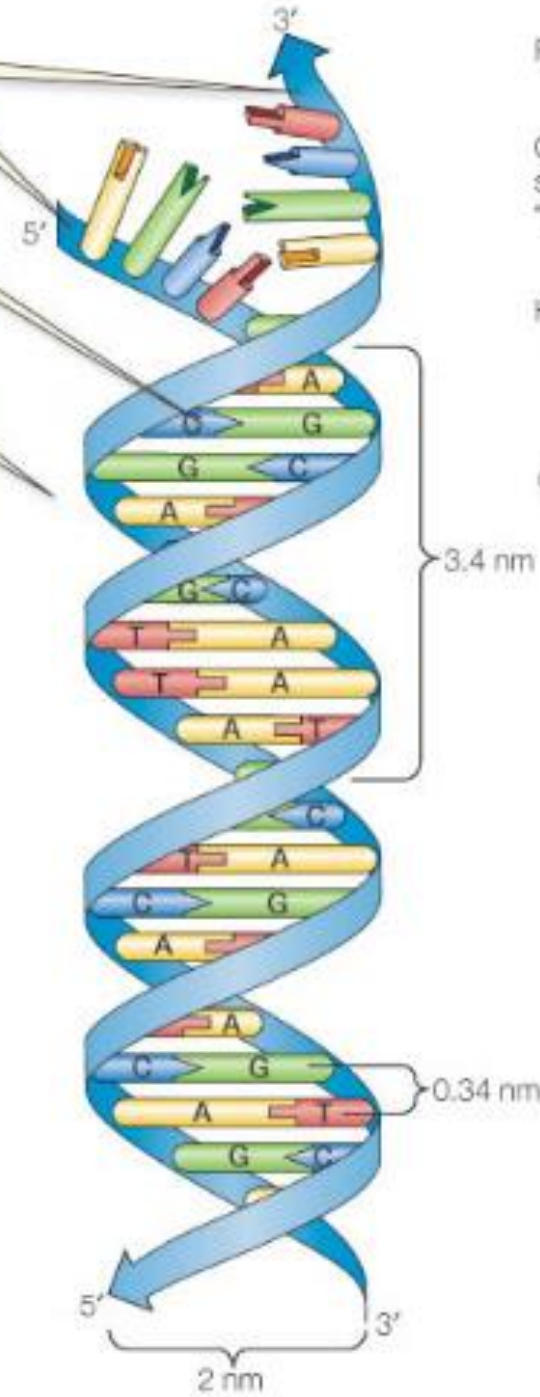


(B)

The blue bands represent the two sugar-phosphate chains.

Pairs of bases form horizontal connections between the chains.

The two chains run in opposite directions:
5' ↓ ↑ 3'
3' ↓ ↑ 5'



Adenine on one side always matches up with Thymine on the other...

ACCTAGTTG



What would the complement be?

#11

ACCTAGTTG
TGGATCAAC



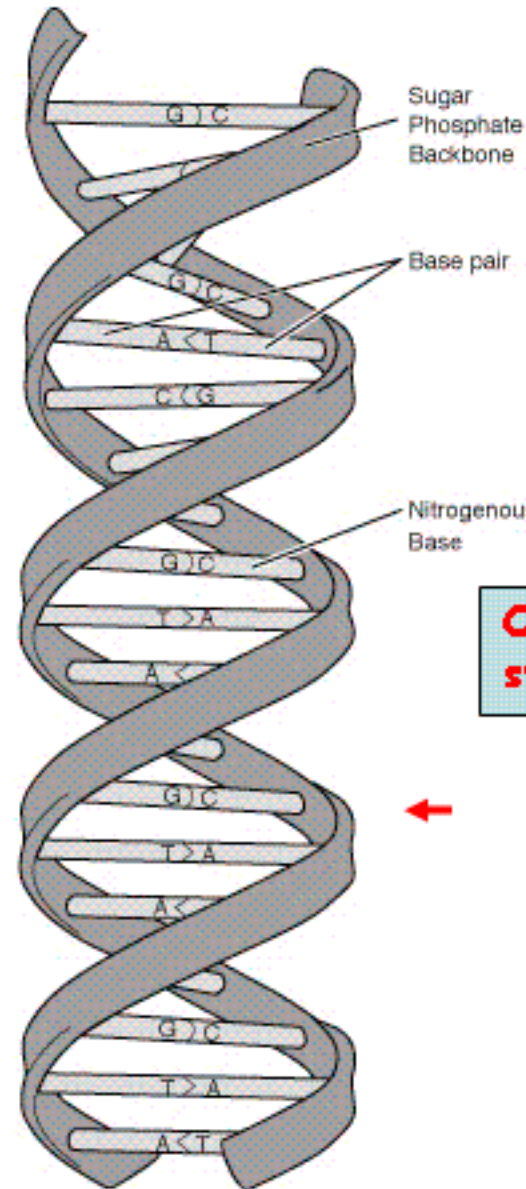
This lets DNA make a copy of itself (replicate)

Complementary strands

the sequence of one strand serves as a template for building the other strand

Strand name:

**plus
positive
sense
Watson**



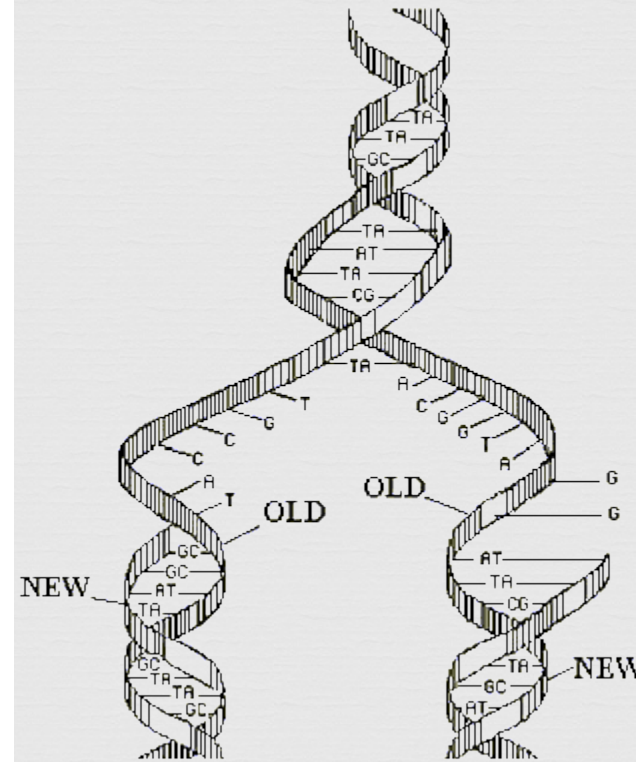
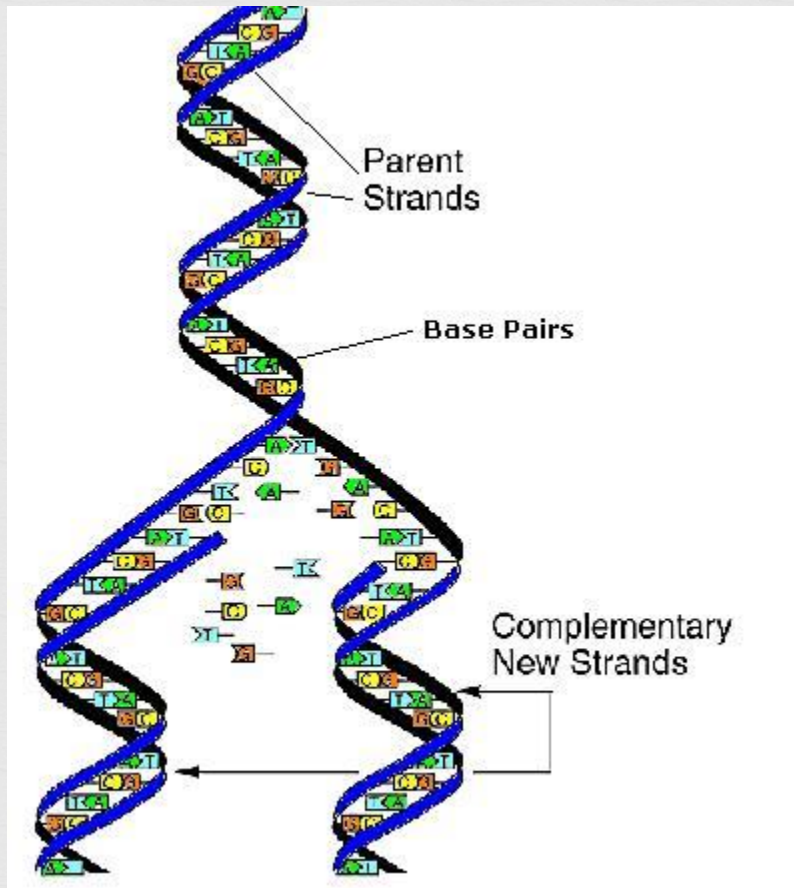
**A always pairs with T
C always pairs with G**

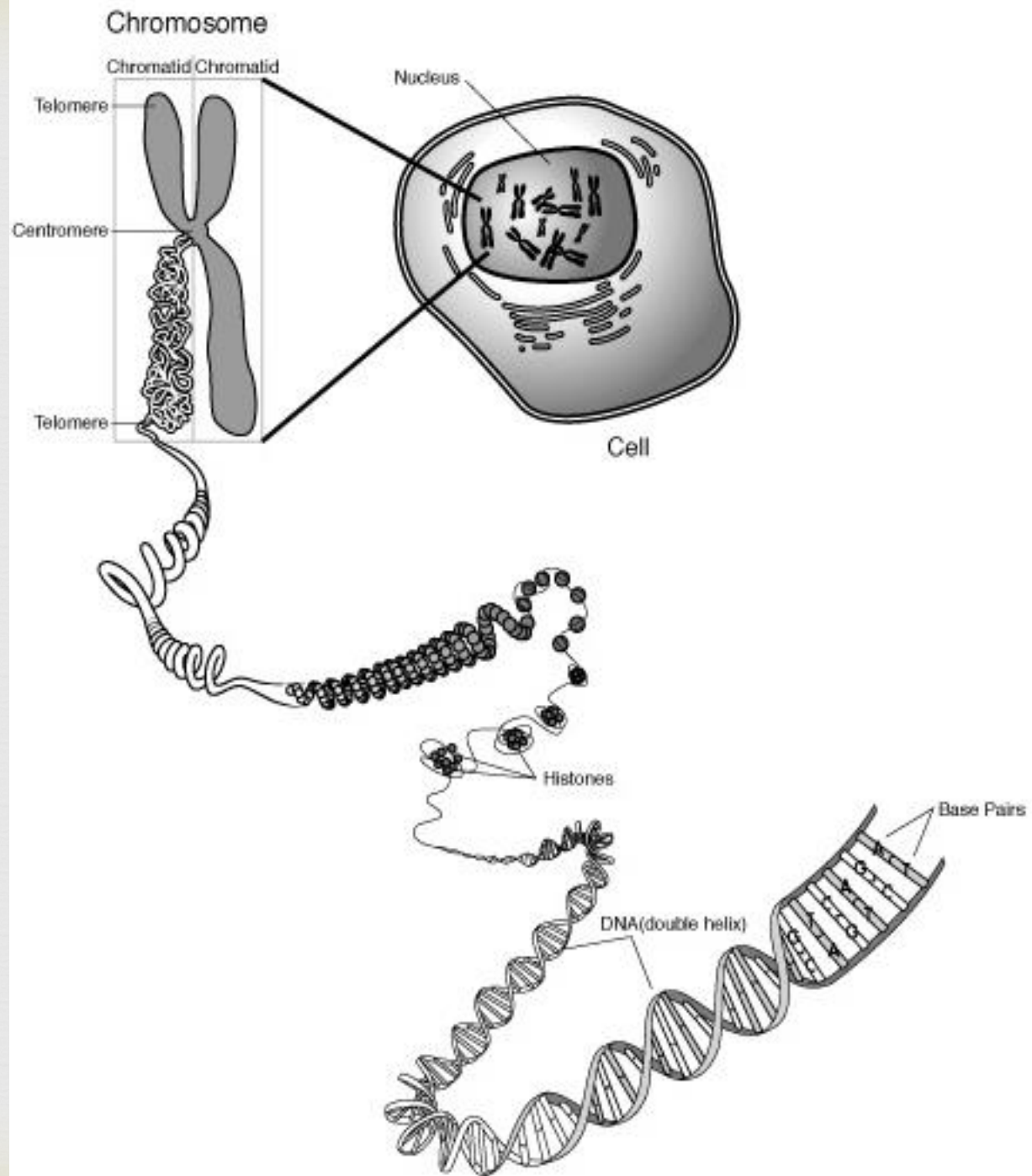
Opposite strand name:

**minus
negative
antisense
Crick**



Unzipping DNA







Incomplete Dominance



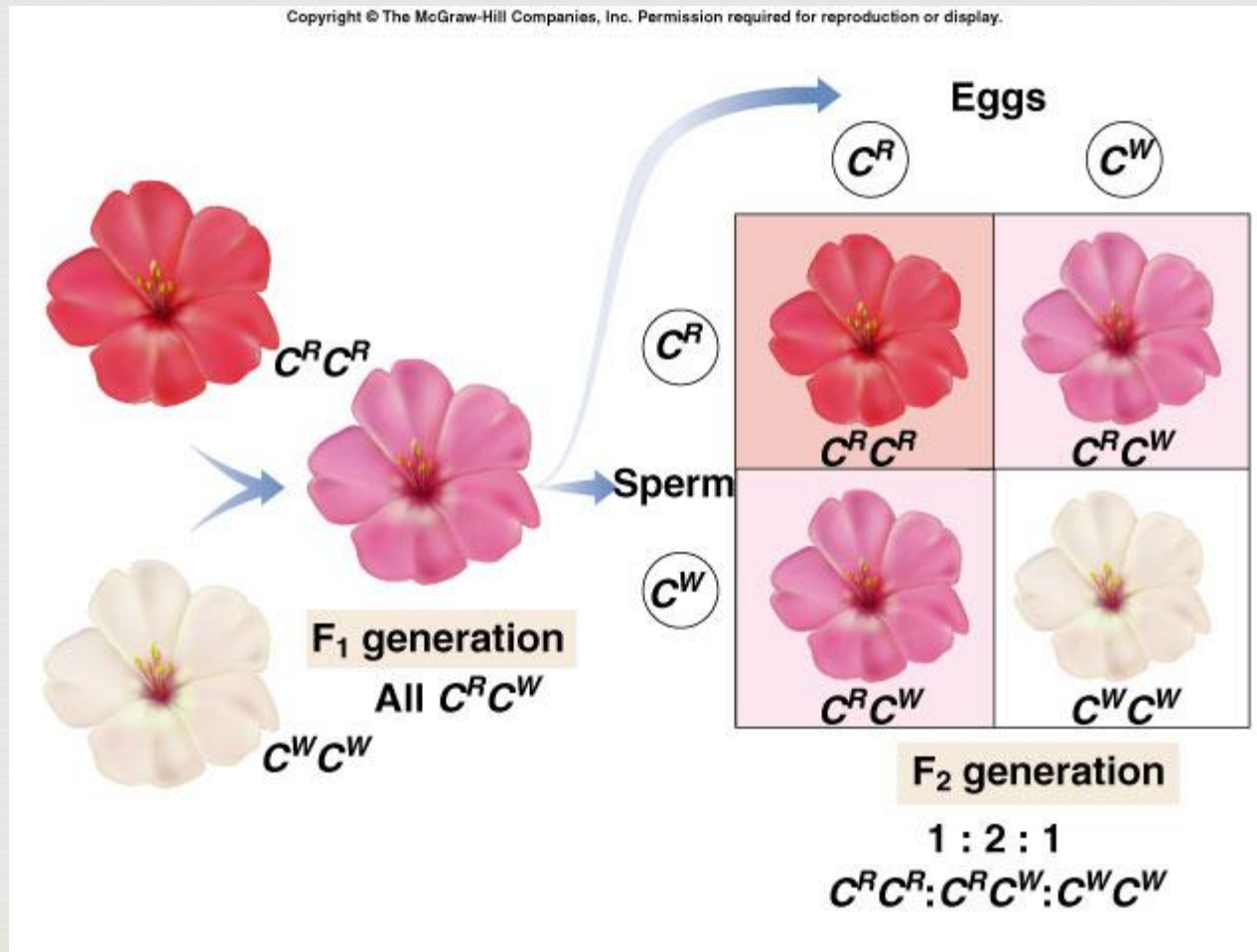
Sometimes one trait is not completely dominant over another.

Each allele has a little bit of influence.

Example: snapdragon



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Example: cows



What Influences Genes?

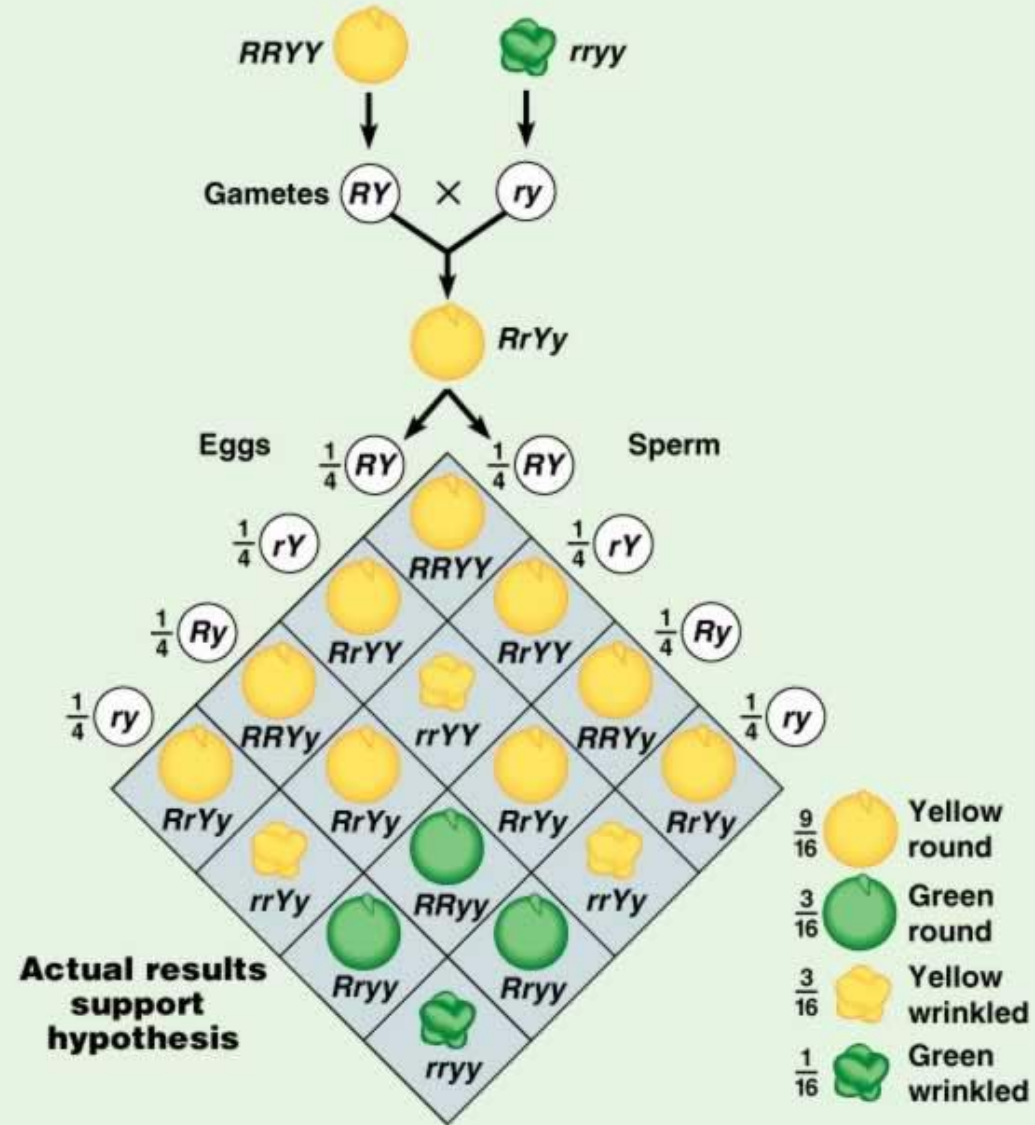
#15



- ❧ One gene can influence many traits
(tiger eye/hair color)
- ❧ Many genes can influence one trait
(skin/hair/eye color are all on the same gene in humans)



Hypothesis: Independent assortment



What Influences Genes?



☞ Environmental factors

☞ Diet

☞ Exercise

☞ Family/friends

