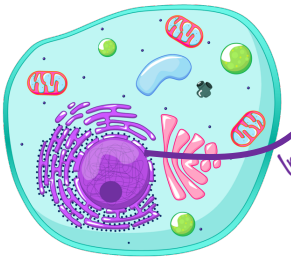
A1.2

DNA Structure (HL)

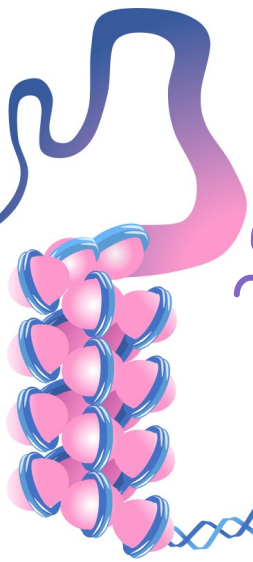
DeoxyriboNucleic Acid



Fun Fact!
"The DNA of a single cell is 2 meters long"
...so how does it all fit?

Chromosome
wound-up DNA
(23 pairs per cell)

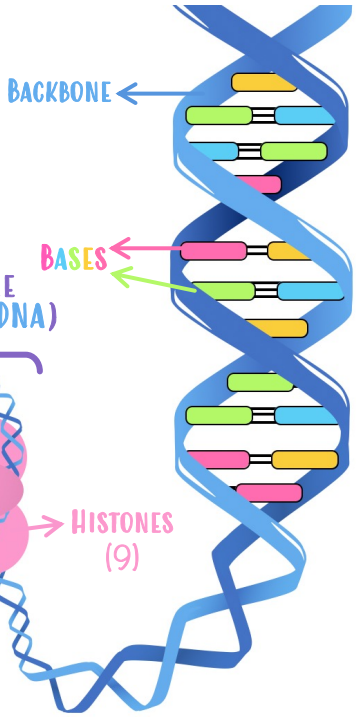
Supercoiling

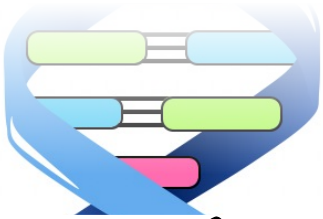


Nucleosome
(Histones + DNA)

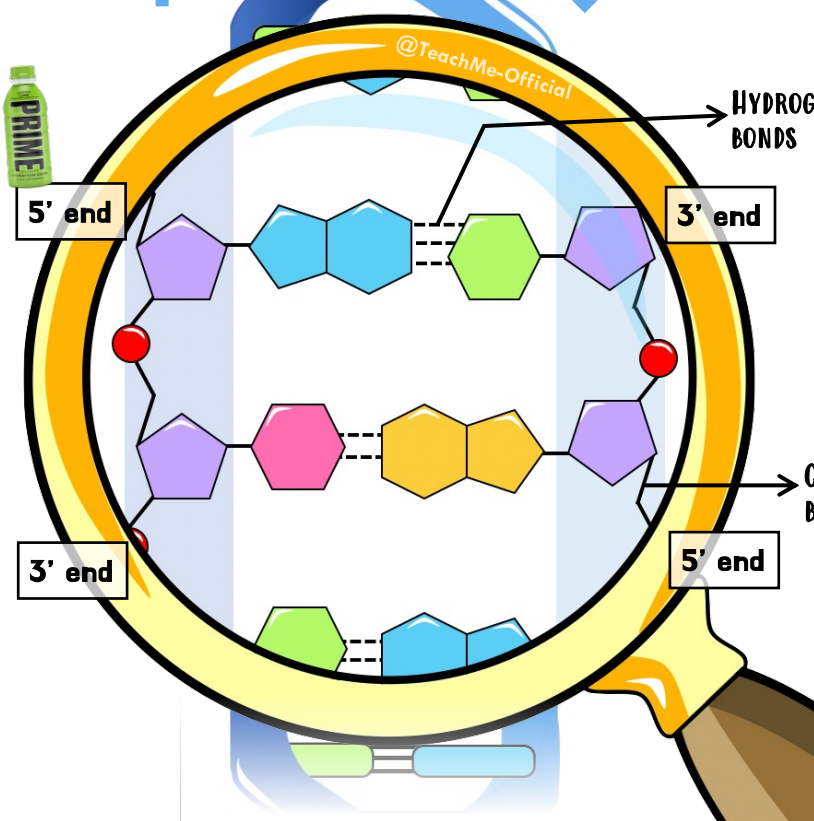
Histones
(9)

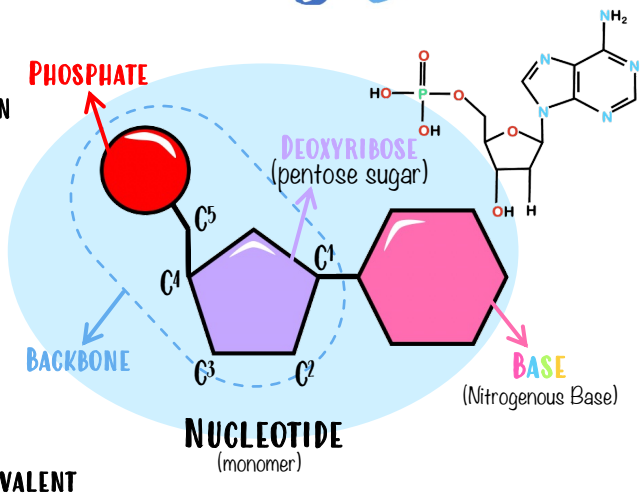
Double Stranded Helix





Anti-parallel Strands





Nucleotide
(monomer)

Pyrimidines

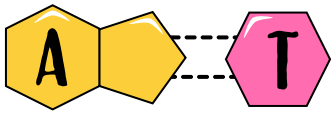
How to remember?
PYramidines have a Y in their names!

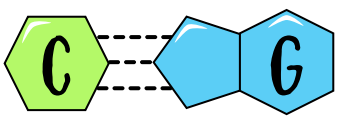
- Thymine
- Cytosine

Purines

- Adenine
- Guanine

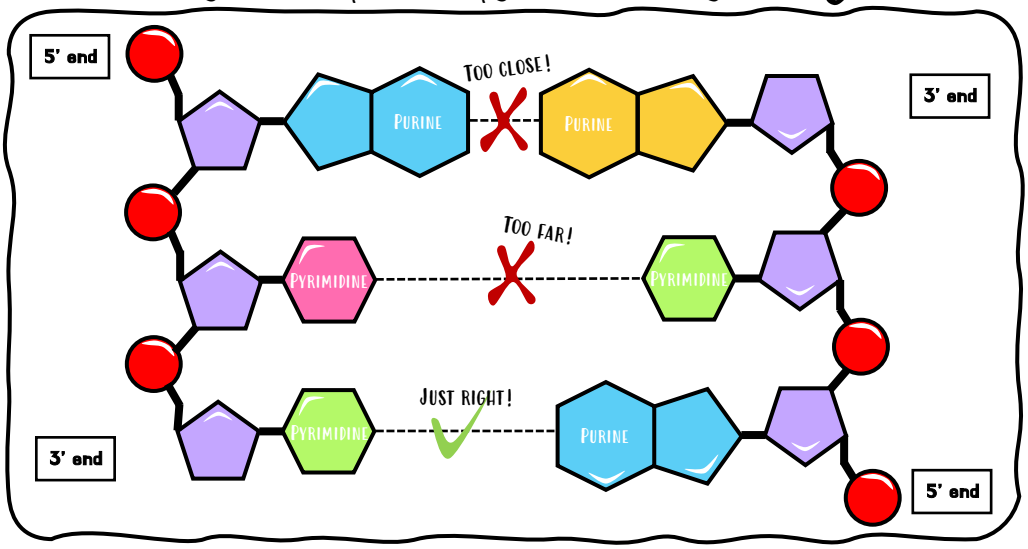
Complementary Base Pairing



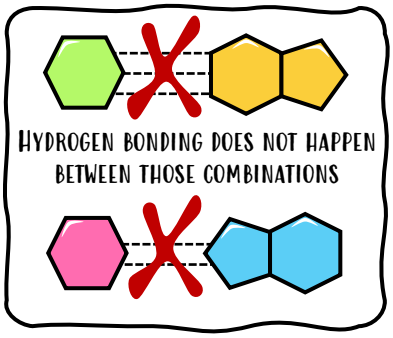


How to remember?
"A" and "T" are Always Together

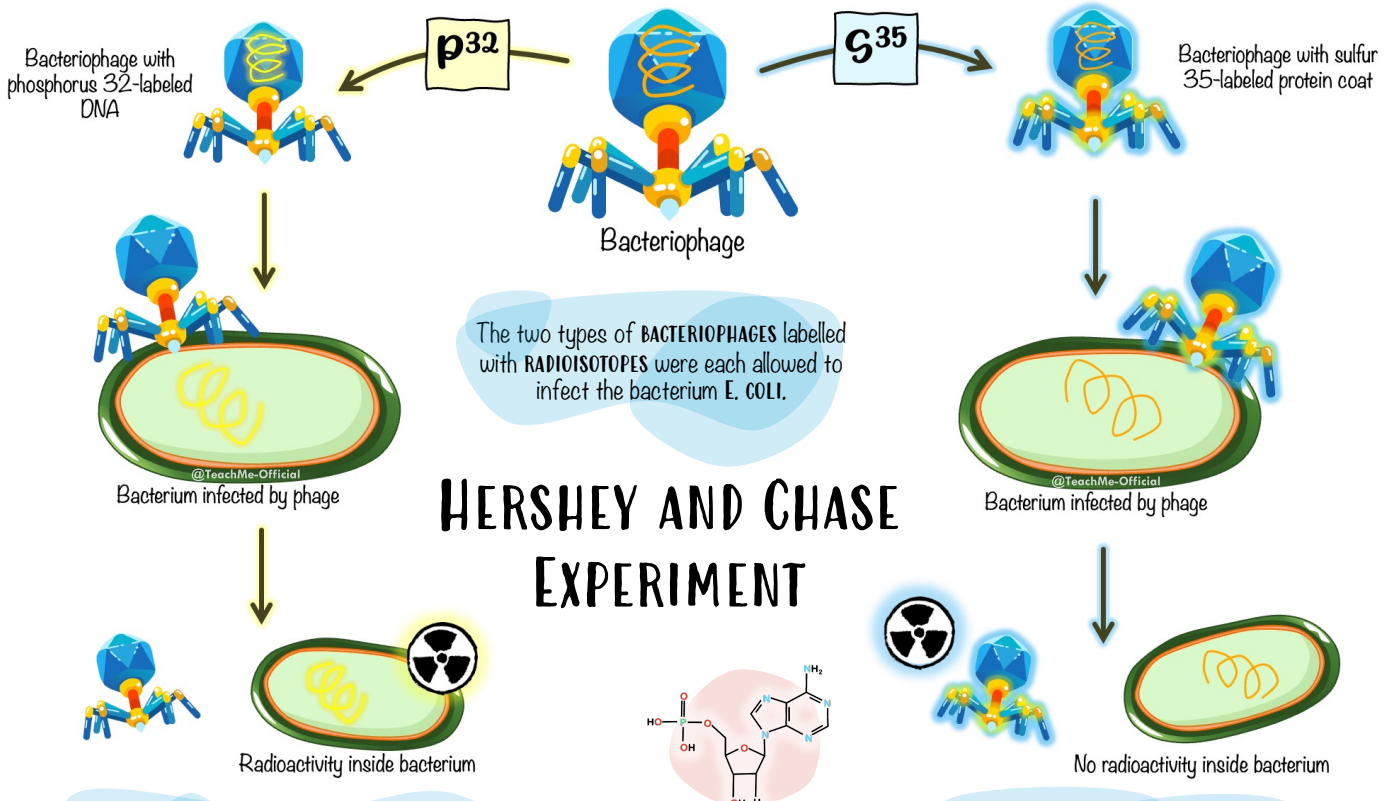
Why can't two purines or pyrimidines bind together? **SIZE!**



Why can't adenine and cytosine bind? or guanine and thymine?



HERSHEY AND CHASE EXPERIMENT

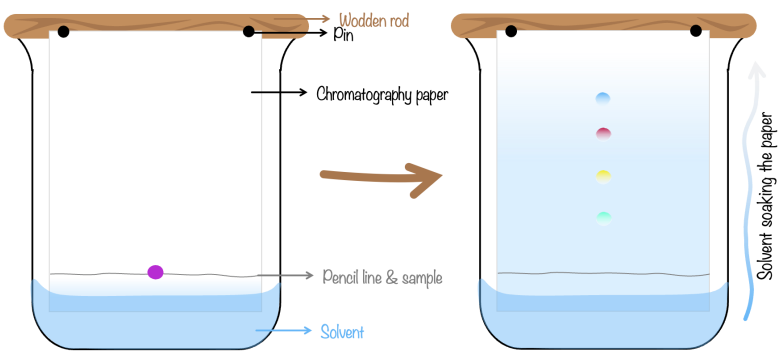


The two types of **BACTERIOPHAGES** labelled with **RADIOISOTOPES** were each allowed to infect the bacterium **E. COLI.**

E. coli infected with the phosphorus 32-labelled bacteriophage **HAD RADIOACTIVITY** detected inside the cells, a location **INDICATING DNA.**

The E. coli infected with the sulfur 35-labelled bacteriophage had **NO RADIOACTIVITY** inside the cell.

Because DNA contains phosphorus and not sulfur, this allowed Hershey and Chase to conclude that **DNA** (not protein) was the **GENETIC MATERIAL.**



CHARGAFFS RULE

DNA contains the **SAME** number of adenine as thymine nucleotides, as well as the **SAME** number of guanine and cytosine nucleotides

(found by paper chromatography)

notes