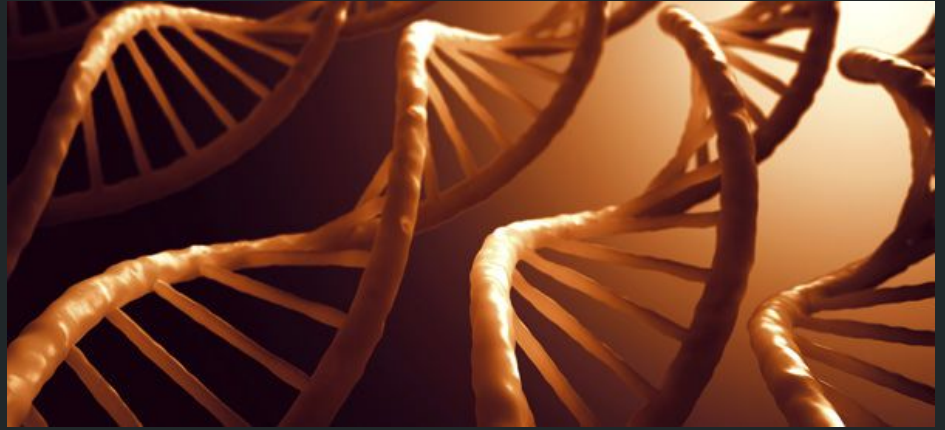


DNA & RNA

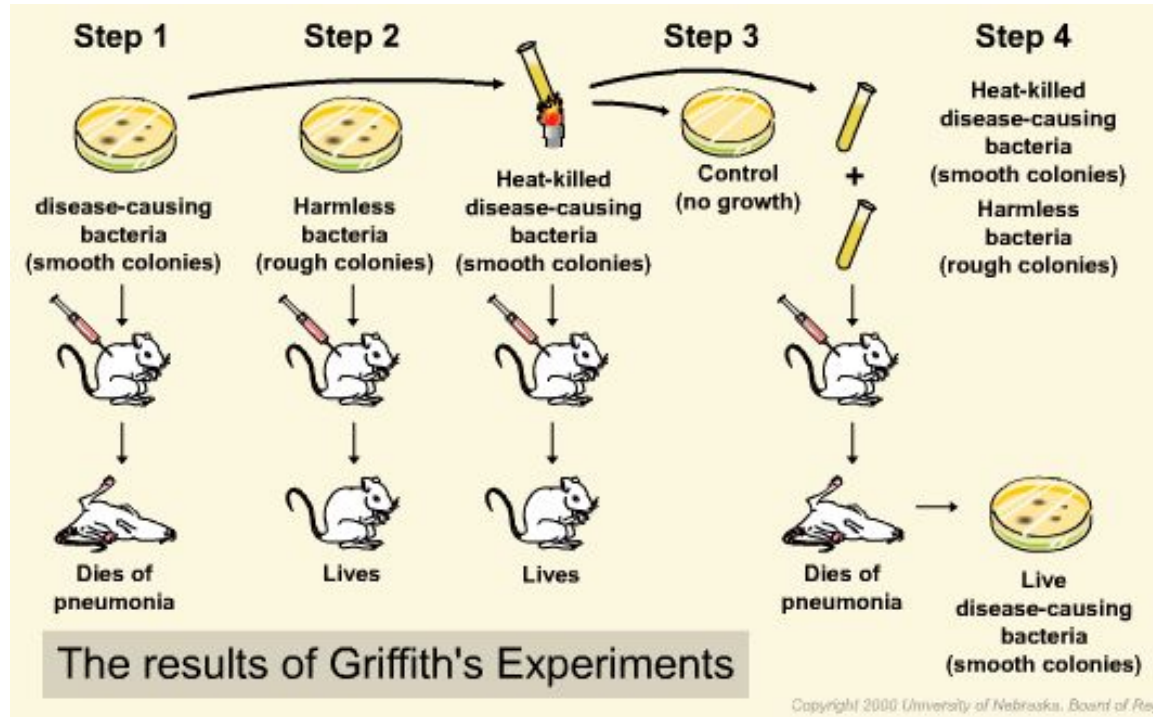


Unit 7 Chapter 12

Chapter 12.1 DNA

Discovery the chemical nature of the gene was the first step to understanding genetics

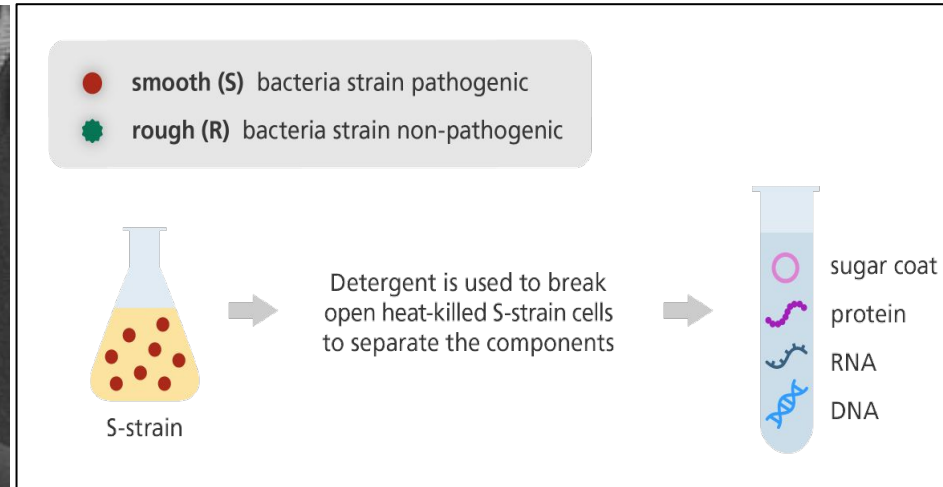
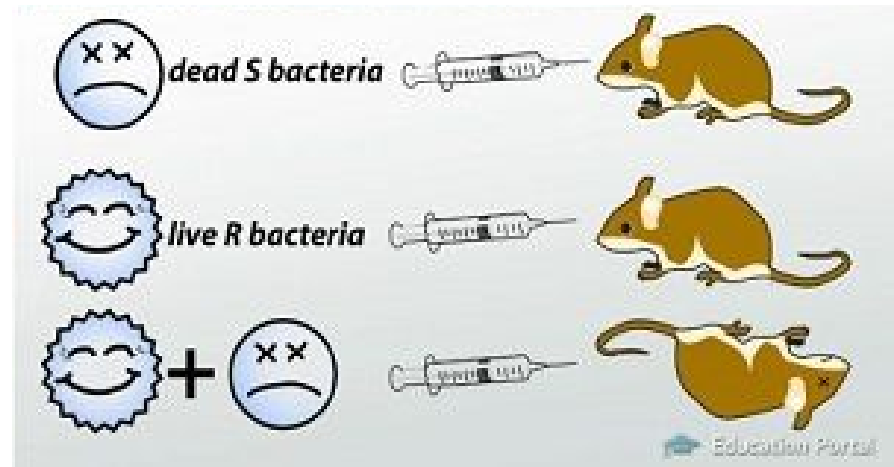
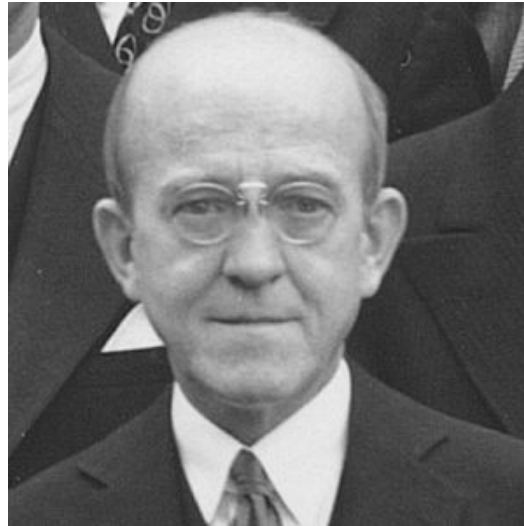
In 1928, British scientist, Frederick Griffith, was studying bacterial transmission of pneumonia.



Griffith called this process **transformation**:
One strain of bacteria had apparently
been changed permanently into the the
other.

Griffith hypothesized that the information
from the altered bacteria must have been
passed on

In 1944, a
Canadian
biologist, Oswald
Avery repeated
Griffith's
experiment.

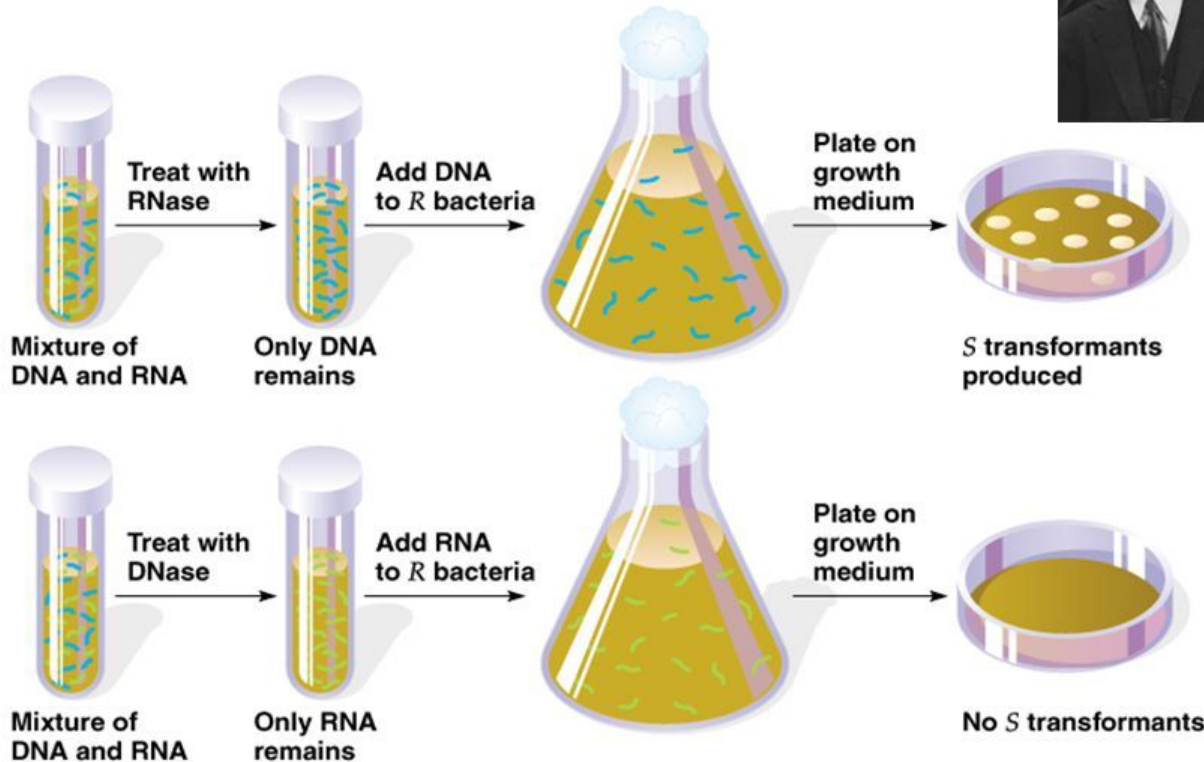


Oswald T. Avery's Transformation Experiment - 1944

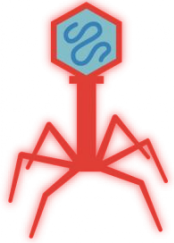
Determined that "IIIS" DNA was the genetic material responsible for Griffith's results (not RNA).



Avery discovered that DNA was responsible for the "transforming" factor.

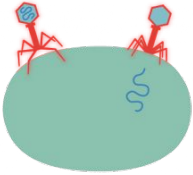


In 1952, two American scientists, Alfred Hershey and Martha Chase, were studying viruses that infect bacteria.



T2 virus

with radioactively
labelled protein coat



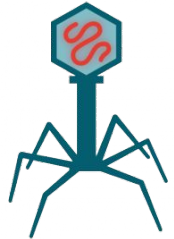
virus hijacks
bacterial cell



virus produced
is not radioactive

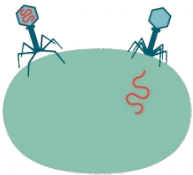


**protein is
not inherited**



T2 virus

with radioactively
labelled DNA



virus hijacks
bacterial cell



virus produced
is radioactive

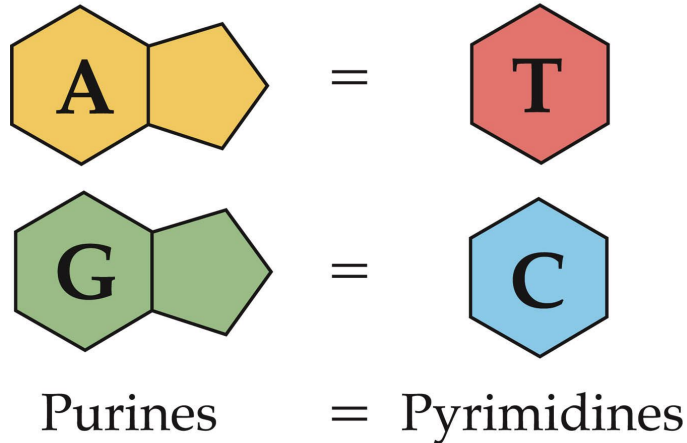
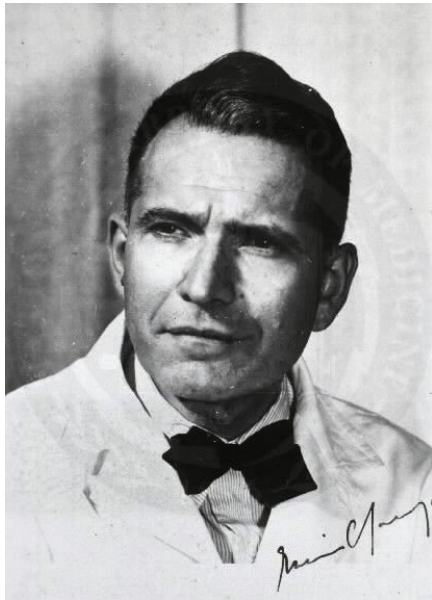


**DNA is
inherited**

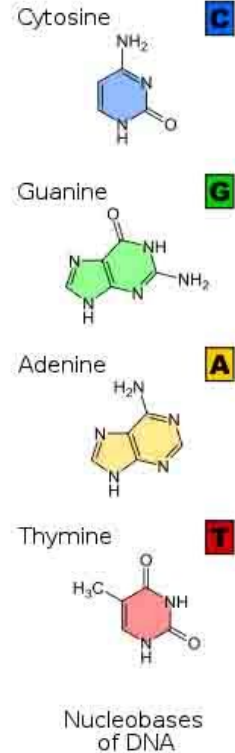
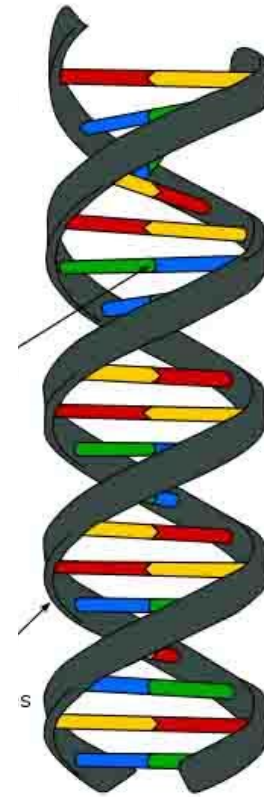


They discovered that the genetic material of the bacteriophage (virus) was DNA, not the protein coat.

In 1950, an American biochemist, Erwin Chargaff published his studies discovered the chemical composition of nitrogen based pairs of a DNA strand. Now called Chargaff's rules.



LIFE: THE SCIENCE OF BIOLOGY, Seventh Edition, Figure 11.5 Chargaff's Rule
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DNA
Deoxyribonucleic acid

Also in the 1950's, a British scientist, Rosalind Franklin, took x-rays of DNA to discern the pattern of the structure. Her x-ray photographs were the first hint at the double helix structure of DNA.

