

Name: _____

DNA History Webquest☺

I. Friedrich (Fritz) Miescher

<http://www.dnaftb.org/15/bio.html>

Find Miescher on the timeline and click on the bucket with the Red Cross to watch the animation. In 1869, he extracted a substance from white blood cells that he called nuclein. What do you think he was actually extracting?

II. Frederick Griffith

http://simple.wikipedia.org/wiki/Griffith's_experiment

http://www.mun.ca/biology/scarr/Transformation_Experiment.html

Griffith's Experiment – The following questions pertain to Griffith's experiment:

1. What organism(s) did Griffith use in his experiment? _____
2. What are the two strains of pneumococcus and the distinguishing characteristics of each?

Strain	Distinguishing Characteristics

3. How did Griffith determine which strain caused disease?

4. In one experiment, Griffith injected heat-killed S strain bacteria into the mice.

- a. What was he trying to determine by conducting this experiment?

- b. What were the results of this experiment?

- c. What conclusion did he reach based on these results?

5. In another experiment, Griffith mixed heat-killed S strain with live R strain bacteria and injected the mixture into mice.

- a. What strain of the bacteria was found in the blood samples of the mice?

- b. What were the results of this experiment?

- c. What conclusion did he reach based on these results?

III: Oswald Avery, McCarty and McLeod

<http://www.austincc.edu/~emeyerth/dnagen.htm>

<https://sites.google.com/site/gstnteam23/avery-macleod-mccarty-experiment>

Avery's Experiment - The following questions pertain to Avery's experiment:

For each molecule listed, indicate whether they caused a transformation (Yes) or did not cause a transformation (No):

- | | | | |
|-------------|-------|-----------------|-------|
| a. RNA | _____ | d. Carbohydrate | _____ |
| b. DNA | _____ | e. Lipids | _____ |
| c. Proteins | _____ | | |

6. In 1944, what did he discover that DNA is responsible for?

IV Alfred Hershey and Martha Chase

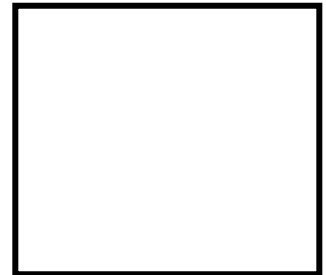
<http://library.thinkquest.org/TQ0312650/hershey Chase.htm>

<http://biology.clc.uc.edu/courses/bio104/dna.htm>

http://en.wikipedia.org/wiki/File:Hershey_Chase_experiment.png

7. What are bacteriophages?

8. Sketch a diagram of a bacteriophage in the space provided. Label the protein coat and the DNA of the virus.



9. What effect does a bacteriophage have on E. coli bacteria?

10. In one experiment they grew bacteriophages in a culture with radioactive sulfur (35S).

a. Into what part of the phage was the 35S incorporated? (protein coat or DNA)

b. The phages were then allowed to infect E. coli. Where was the 35S found after mixing with the E. coli?

c. What conclusion did Hershey and Chase make, based on these results?

11. In another experiment, they grew bacteriophages in a culture with radioactive phosphorous (32P). The phages were then allowed to infect E. coli.

d. The phages were then allowed to infect E. coli. Where was the 32P found after mixing with the E. coli?

e. What conclusion did Hershey and Chase make, based on these results?

f. The Hershey Chase experiment provided evidence that _____ was the genetic material.

V Erwin Chargaff

<http://fig.cox.miami.edu/~cmallery/150/gene/chargaff.htm>

12. What is the difference between a purine and pyrimidine? _____
13. Adenine (A) pairs with _____
14. Guanine (G) pairs with _____
15. The bases that are purines include _____ & _____.
16. The bases that are pyrimidines include _____ & _____.
17. How many hydrogen bonds forms between A&T? _____ C&G? _____
18. If an organisms genome consists of 10% thymine, what percent should be cytosine?

VI Rosalind Franklin.

<http://www.dnafb.org/19/bio-3.html>

19. What technique did Franklin use and improve?
20. What did she discover about the probable shape of DNA?
21. What controversy surrounds Rosalind Franklin?

VII James Watson and Francis Crick.

http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/D/DoubleHelix.html#Watson_Crick

http://evolution.berkeley.edu/evolibrary/article/history_22

22. What did they receive the Nobel Prize for?
23. Describe the following parts of the DNA model proposed by Watson and Crick:
 - a. Backbone: _____
 - b. Rungs: _____