DNA HISTORY READINGS   Name:_____

Envisioning DNA: The Nature of Science and the Search for the Double Helix
The Natural Selection, spring 2003

1. How is science distinguished from other ways of knowing?

2. How old were Watson and Crick when they first met?

3. Why were proteins (and not DNA) thought to be the molecule of heredity?

4. What is the "transforming principle" (based on Fredrick Griffith's experiment)?

5. Who discovered that the "transforming principle" was DNA?

6. What information was "at hand" for Watson and Crick when they began to decipher the structure of DNA?

7. What is "Chargaff's Ratios"?

8. Who were Watson and Crick's most notable collaborators?

9. Who was Linus Pauling and how was his model for the structure of DNA incorrect?

Collaboration and Competition – Rosalind Franklin's Story
The Natural Selection, spring 2003

1. Where did Rosalind Franklin work before joining King's College?

2. Why might Wilkins and Franklin been manipulated into disliking each other?

3. How was Watson and Crick's method of determining the structure of DNA different than that of Franklins'?

4. How might Franklin's education and training limited her ability for creative thought?

A Structure for Deoxyribose Nucleic Acid
Nature, Vol. 171, April 1953

1. Who wrote the article?

2. What two reasons did the authors give for rejecting the previously published hypothesis of Linus Pauling?

3. What general structure do the authors propose for DNA?

4. Do the two chains run in the same direction?

5. How many times does the molecular structure repeat for one complete turn? (Hint: Each nucleotide is referred to as a "residue")

6. How long is one complete turn of the helix?

7. What holds the two chains together?

8. How do the purine and pyrimidine bases always pair together? What previously discovered evidence supports this fact? Who discovered this evidence?

9. Why can't the model be constructed of ribose sugar instead of deoxyribose?

10. Who is credited for experimental evidence to support the hypothesis proposed?