

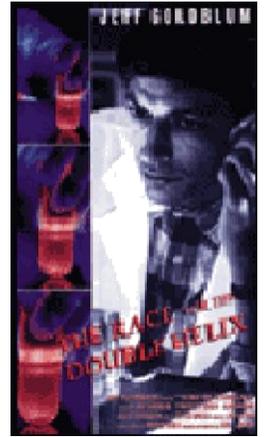


Honors Biology Extra Credit Opportunity: Spring Semester 2013

"Race For The Double Helix" Film Questions & Collateral

Reading: "[A Structure for Deoxyribose Nucleic Acid](#)" J. D. Watson and F. H. C. Crick

DUE DATE: BY Wednesday May 14th - no exceptions!



The Race for the Double Helix (also known as *Double Helix* and *Life Story*) is a 1987 TV film dramatisation of the discovery of the structure of [DNA](#) in 1953. It was originally made for the BBC's Horizon science series and is generally considered to be one of the better science documentaries. The film tells the story of the rivalries of the two teams in the race to the discovery - [Francis Crick](#) & [James D. Watson](#) at [Cambridge University](#) and [Maurice Wilkins](#) & [Rosalind Franklin](#) at [King's College London](#). It also recreated detailed, 1950's style, molecular models.

This information serves as an introduction to the film. More information can be found by clicking on links or at:

http://en.wikipedia.org/wiki/The_Race_for_the_Double_Helix

The film manages to convey the loneliness and competitiveness of scientific research but also educates the viewer as to how the structure of [DNA](#) was discovered. In particular, it explores the tension between the patient, dedicated lab work of Franklin and the sometimes uninformed intuitive leaps of Watson and Crick, all played against a background of institutional turf wars, personality conflicts and sexism. Jokes Watson, plugging the path of intuition: "Blessed are they who believed before there was any evidence." The film also shows why Watson and Crick truly earned their discovery: they overtook their competitors in part by reasoning from genetic function to predict chemical structure, thus helping to establish the then still-nascent field of [molecular biology](#). Nevertheless, Franklin would rightly have shared the [Nobel Prize](#) had she not died tragically of cancer before it was awarded. All of this is insightfully examined in the supplementary materials to the Norton Critical Edition of Watson's book *The Double Helix* ([ISBN 0-393-95075-1](#)), to which the film makes a fine companion.

A. To earn up to 1% extra credit to be added to the semester grade

(actual % awarded based on quality):

1. View the film *Race for the Double Helix*. There will be several screenings of this film after school. Listen for announcements from your instructor. They will also be posted on Bb. You won't find this in rental stores. It is considered a "rare find." You may find a vhs copy on amazon – but quality may not be the best (and will most likely be expensive)!
2. You are **STRONGLY ENCOURAGED** to view this film more than once. You will get SO much more meaning from multiple viewings compared to just seeing it once.
3. Answer questions included on the *Race for the Double Helix* handout on your own paper. (or better yet - save electronically and email directly to your instructor as an attachment).
4. Your answers need to be accurate and complete. Be sure to elaborate using observations from the film whenever required. It is important that you explain your reasoning whenever you're asked to do so.
5. There couldn't be a more appropriate collateral reading than the original paper written by Watson and Crick (**April 25, 1953 (2), Nature (3), 171, 737-738**). This is the document you see being prepared at the end of the film. Given its importance in today's world, you may be surprised by how short this article actually was. **Be sure to read the annotations** (which follow at the end). Suggestion – click on printable version to read and highlight offline. This link takes you to this extraordinary document: <http://www.exploratorium.edu/origins/coldspring/ideas/printit.html>
6. Answer the questions related to the collateral reading (#5) found within the *Race for the Double Helix* handout. Again - QUALITY is important in writing your responses.



B. To earn up to 2% extra credit to be added to the semester grade (actual % awarded based on quality) you may choose to do both option A and B (below) :

HEADLINE: SCIENTISTS DISCOVER THE STRUCTURE OF DNA

You can't turn on the television, pick up a newspaper, or connect to the internet without finding some story referencing DNA. Perhaps the most important discoveries of the 20th century are the discovery of DNA and the discovery of its structure. So important that the researchers responsible for the structure's discovery were awarded a Nobel Prize. So important that everyday things such as crime scene investigation and drug production could not occur without knowledge of DNA. The discovery of DNA and its structure has opened the door for the mapping of the human genome and perhaps will one day lead to the end of all genetically inherited disease. Knowledge concerning DNA has and will continue to dramatically affect our lives.

YOUR ASSIGNMENT:

The discovery of DNA and its structure was a big deal. Big stories like this demand attention in newspapers, magazines, and informational television programs. Once given an assignment, the job of a reporter is two fold. First, the reporter must find out all the details concerning a story. Finally, the reporter must tell the story in a fashion which is interesting enough that the general public will want to read it. Your job is to research the story about how the structure of DNA was discovered and then tell the story. This assignment entails producing the following:

- Thorough research which will help you tell the story of how the structure of DNA was discovered. In other words, at least two sources other than your textbook.
- Produce a written story of how the structure of DNA was discovered based upon your research. The story must include references to all the individuals who made contributions to the discovery of the DNA structure. In addition, tell the story in an interesting way which will make a reader want to read the story. Finally, it's usually helpful to include vivid graphics which grip the reader's attention. The story should be no longer than three double spaced pages in length.
- All writers are required to cite their sources of information. You must provide a works cited page in an approved format (APA) - the LMC staff can help with this!
- Finally, it is of the utmost importance that you add a section to your story which discusses the importance of this discovery to our society presently and the possible advancements which may take place in the future as a result of this discovery.

<i>A Self-Assessment Rubric to Assist With Your Writing:</i>					
<i>Your paper is well written and easy to understand.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>The paper is written in an interesting fashion. The paper includes some sort of gripping graphic or attention getter.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Your story accurately depicts the actual events which led up to the discovery of DNA structure.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Your story is backed up by good sources and you have given these sources adequate credit for their information.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Your story includes information regarding present and future applications to the knowledge of DNA and its structure.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>

