Franklin and DNA

1. List the names of at least 4 important scientists from the video.

Four major scientists in this film include Francis Crick, James Watson, Rosalind Franklin, and Maurice Wilkins.

1. What was Rosalind Franklin trying to do at the same time as Watson and Crick?

Rosalind Franklin was trying to produce an x-ray photo of DNA.

3. Who was awarded the Nobel Prize in 1962?
 James Watson, Francis Crick, and Maurice Wilkins were awarded the Nobel Prize in 1962.

1. How did Watson describe Franklin in his book?
Watson describes Franklin as a villain. She was described as being bad tempered and was blamed for hoarding data and lashing out at the men in the lab.

1. Why wasn’t Franklin able to defend herself as portrayed in Watson’s book?
Franklin died at the age of 37, which was 10 years before the publication of the “Double Helix.” Therefore, she was not able to defend herself.

1. Describe Franklin’s early years.
Franklin was born in London in 1920 to a family who was successful through banking and publishing. Her family focused on scholarship, philanthropy, and involvement in social classes. They were English Jews who came to England. Franklin enjoyed playing memory games and practiced arithmetic for pleasure. She attended the St Paul’s girl school which focused on preparing girls for a career.

1. Where did Franklin study physics and chemistry?
Franklin studied physics and chemistry at Cambridge University.

1. How did Franklin contribute to the war effort?

Franklin researched coal which later led to better gas masks. She wrote 5 papers and was awarded a PhD.

1. What did Franklin perfect when she began working in Paris?

Franklin perfected techniques of x-ray diffraction.

1. What often forced Franklin to suspend her work for weeks at a time?
If safe levels of overexposure to x-rays were exceeded, Franklin would have to suspend her work for a few weeks.

1. What was Franklin main assignment when she began working in Paris in 1951?
Franklin’s main assignment, when arriving in Paris in 195, was to discover the structure of DNA.
2. Describe the relationship between Franklin and Wilkins.
The relationship between Franklin and Wilkins was stressful and they struggled to get along. Franklin was better trained and began working independently. Furthermore, Wilkins lost his lab and his lab assistant because he was on vacation when Franklin arrived.

1. How many forms of DNA does Franklin initially photograph?
Franklin initially photographed 2 forms of DNA. This can be known as the most crucial step in the discovery of the structure of DNA.

1. What does the “x” shape prove?
The “x” shape proved the diffraction signature of a helix.

1. What approach did Watson and Crick use to find the shape of DNA?
Watson and Crick used the approach of model building to find the shape of DNA. However, there model was incorrect.

1. What does Franklin finally name her best “B form” picture?
Franklin named the “B form” picture Photo 51.

1. How did Watson and Crick get Franklin’s picture/work?
Jim Watson showed up at Franklins office and recommended they work together to find the structure of DNA. However, Wilkins had gotten Photo 51 from someone and showed it to Watson.

1. Why didn’t Franklin get any credit for her work?
Franklin’s experimental framework guided Watson and Crick to find the structure of DNA. Watson and Crick wanted to publish quickly, and it was agreed upon to publish 3 articles. However, the articles only suggested that Franklin’s findings confirm Watson and Cricks model and did not lead to the discovery.

1. What was the general theme of her work after leaving King’s?

After leaving King’s, Franklin focused her work in a virus research lab. Her greatest discovery in this lab was working out the structure of a virus.

1. What disease was Franklin diagnosed with and what was the probable cause?
Franklin was diagnosed with cancer and they believe the cause could be from exposure to x-rays and working with x-rays during her research.

1. If you were Franklin and you learned that Watson and Crick used your work without crediting you, how would you feel? Why?
I would feel angry and upset because Franklin spent years of research and time in the lab working on this discovery. It would make me feel saddened that I put so many hours into this major discovery of life, yet I did not get any recognition.

1. If you were Watson or Crick, what would you have done? Would you have downplayed the role of Franklin’s work to publish quickly? Why or why not?

If I were Watson or Crick, I would not have taken credit the way they did. I would have given credit to Franklin for all the previous work she had done and explained how that led to the discovery of the structure. I would not have downplayed the role of Franklin’s work because she deserved credit for all the hard work she put into the research and discovery.