SCIENCE TEACHER.IE

Forgotten Franklin - literacy task

Forgotten Franklin

This is a story about four scientists and one awesome discovery which was to change the way we look at the world forever. Three of the scientists achieved fame and fortune, but one of them, Rosalind Franklin, was almost forgotten. This is her story.

Horrible Science Hall of Fame: Rosalind Franklin (1920-1958)

Nationality: British

During the Second World War the young scientist researched coal.

She showed that coal could be made into a new material called carbon fibre. Nowadays carbon fibre is used to strengthen plastic to make a light substance that is tougher than steel. And you'll find carbon fibre in planes and cars and even tennis rackets.

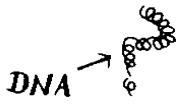
But carbon fibre wasn't Rosie's greatest work.

Crucial crystals

Her real interest was in using X-rays to study the structure of the atoms in crystals. By looking at the pattern of reflected X-rays you can tell a lot about how the atoms are arranged. She did this work in Paris and then King's College, London. In 1951 she was working on a chemical called DNA and that's when the trouble began.

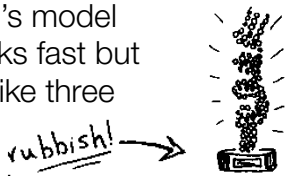
Is this what Rosalind's Secret Diary Looked Like? I shouldn't think so!

July 1951 – Dear Diary, I'm so miserable. Here I am at King's College studying DNA and I ought to be really happy. But I'm not. There's a guy here called Maurice Wilkins and he's doing the same job as me. But I can't get on with him. OK, to be fair he can't get on with me and we argue all the time, it's awful. At least I'm making progress with my work. I've designed a new X-ray camera which takes clearer pictures and I reckon DNA looks like a corkscrew. But it's hard to make out.



November 1951 – today a young American turned up at a lecture I was giving about my work. He said his name was James Watson. Well, it looks like this Watson and his pal Francis Crick are working on DNA too, and they're mates of that dreaded Wilkins. They've not got anywhere though. During my lecture Watson just sat

March 1952 – Wilkins and I went to Cambridge to look at Watson's model of DNA. I met Crick there too. He's balding and very clever and talks fast but I didn't like him for some reason. Anyway, the model was shaped like three corkscrews intertwined. Huh-well, I put them right. You should have seen Watson's face!



January 1953 – My work is making good progress and sometime in the next few years I will make a breakthrough. Funny thing is one of my best X-ray pictures of DNA has gone missing. I wonder whether Wilkins has borrowed it. I wouldn't put it past him to take it without asking.

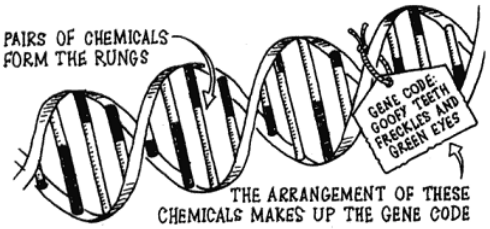
Maurice Wilkins had indeed borrowed the picture and he showed it to Crick and Watson.

A tremendous team

James Watson and Francis Crick made a perfect team. Crick later wrote:

Crick was an expert in Rosalind's field of X-ray crystal studies and Watson had studied DNA in types of viruses. And they were well matched in other ways. Whilst Rosalind patiently plodded on with her work, Watson and Crick enjoyed relaxing and chatting. Is this your ideal approach to science too? Well, don't get over-excited – Watson and Crick did work very hard, when they were in the mood.

When they saw the crucial X-ray picture they knew at once that DNA was shaped like a twisted ladder with pairs of chemicals forming rungs.



Watson set out to build a model using bits of old wire and cardboard and beads. Together they had cracked the mystery of DNA with perhaps a bit of help from Rosalind Franklin.

Dynamic DNA

The discovery of the structure of DNA was a vital breakthrough. Everyone has a unique DNA code in their cells and today scientists can use bits of DNA in skin and spit left at crime scenes to identify criminals. Throughout the world police forces are setting up databases of the DNA of criminals so they can be checked up if their DNA is ever found at a crime scene.

In 1988 scientists set about mapping every one of the 100,000 genes that make up a human.

By 1997 they had found the areas of DNA linked to 450 diseases caused by the faulty copying of genes within the cells of the body. One such disease is cystic fibrosis which attacks the lungs. Today research continues and we are now looking to producing drugs which affect the DNA when treating diseases.

Your turn

Imagine you have discovered Watson and Crick's diary. Write 4 diary entries from Watson and Crick's perspective telling the reader what they did and how they felt during this exciting time.