

Recollections of the world Record for the longest model of DNA

In March 2008 about 130 people helped the University of Huddersfield break the world record for the longest model of DNA. The participants included university staff, students, sixth formers and sixth form teachers. Fifteen years later, 16 of the participants wrote about the event. This document contains their recollections.

Foreword by Bob Cryan CBE, Vice-Chancellor and CEO of the University of Huddersfield. Aug 2024.

Achieving the Guinness World Record for the longest DNA model in the world stands out as one of the most exhilarating and memorable moments of my tenure as Vice Chancellor at the University of Huddersfield. It perfectly encapsulated our vision of being an inspiring, innovative university of international renown. The involvement of over 130 enthusiastic participants including sixth-formers from across the region was genuinely inspiring, sparking their imaginations and shaping their future career paths. The creativity and ingenuity behind the project not only earned us an internationally recognised award, proudly displayed in my office, but also demonstrated the power of collaboration and innovation. Bringing in one of Yorkshire's legends, Dickie Bird, to adjudicate was a brilliant decision, and the friendship we've built since has been a cherished outcome of this remarkable achievement.

Recollections

The amazing model of DNA model

Participant from the University Estates Department. Aug 2023.

Yes, I was part of the DNA world record from adding some of the parts as well with the hanging of it too. Proud to have been part of it actually. I do also mention this for time to time. I helped from the start from the set-ups of the function room where it started from old Quayside, I did help put some of the DNA pieces together with the visiting young students which was a great fun which all involved had too. I also helped manage the relocation of the amazing model of DNA model to the old Chemistry café area.

I always recount the story of the model to visitors today.

Staff member from the University School of Applied Sciences. Aug 2023.

I was Head of Biological Sciences at the time when we decided to generate a world record breaking DNA molecule. For this I didn't want it to be just a random strip of DNA like previous molecules as I thought it would be more interesting and attract more media attention if it coded for a piece of DNA sequence that encoded a protein that would mean something to the general public. However, an average human gene is 15,000 base pairs so this would be far too big a challenge to build.

The initial idea was to build a DNA molecule of a smaller gene of just over 3000 base pairs my research group was working on involved in vitamin K cycling that is essential for blood clotting that had a good background behind it with Nobel prizes, rodenticide resistance and the cardiovascular drug warfarin as stories. This would allow biologists, chemists, and pharmacists to be involved in giving background to the DNA molecule on the day the record building was done.

Although this would well exceed the previous Guinness world record of 300 base pairs it was reckoned to be still too big to build, so I considered another even smaller gene that I lectured on in my final year applied genetics module. This was the gene encoding insulin which could be made even smaller to 1118 base pairs by eliminating the first part that did not encode for protein. This would not only be big enough to still break the world record, but insulin would be well known to the general public due to diabetes. I suggested biologists and pharmacists could give presentations on this on the day of the event.

I remember a real buzz about the room and a great sense of achievement on the record-breaking day with local School pupils and Huddersfield University biology students building the molecule. I also remember after the event the huge snake of DNA being carried by undergraduate students across campus and eventually being hoisted above the science café, which eventually became a doctoral research student office area in the centre atrium of the research laboratory block. When I give tours to visitors or welcome new PhD students to the university, I always point out the DNA molecule structure and recount the story behind it to this day.

I really did not understand the model from a scientific point of view. I suspect that most of the population are like me.

Member of the public. Invited by J Hopwood. July 2023.

I was surprised and a little embarrassed to be invited to your special DNA construction day in 2008. I was an observer and sat on some raised steps overlooking the scene. The girls and boys were all sixth formers and very enthusiastic about the project. When they were told to start you could feel the energy in the room. I knew about DNA from general knowledge and also about Crick and Watson--a really dramatic story. I also knew about poor Rosalind Franklin who had been sidelined in such a macho way. However, I really did not understand the subject from a scientific point of view. I suspect that most of the population are like me. So I admired the way you organised the project but did not comprehend the scientific process.

I went to North London Collegiate School in London but had very little science education. I grew up in the 1950s when there was a lack of women science teachers and in those days a man was simply not allowed on the premises! I was allowed to take O level biology, which I have always appreciated particularly for the topic of human anatomy. But that was only science. There was a physics lab in the school but it was locked and unused the whole time I was there. The school prided itself on teaching English, French, Latin and History although the Maths teaching was poor. Every year about 8 girls got places at Oxford or Cambridge mostly in arts subjects. I (merely) went to the LSE.

I remember the excitement and relief once the world record had been confirmed.

Final Year Biology student. Now at Siemens Gamesa. July 2023.

I remember being part of the Biosciences Society and planning for the record attempt. From recollection the day took many hours of planning and preparation by the whole society as well as many others. On the day there seemed to be an apprehensive buzz during the practice rounds from everybody involved. After lunch I remember that building began in earnest with every part being checked, rechecked and connected together. I remember the excitement and relief once the world record had been confirmed. One of the most vivid recollections I have though is of the model being suspended across the atrium of the biosciences building.

I remember it like it was yesterday.

PhD student. Now at the UK Health Security Agency. July 2023.

I was helping out as part of the team building on that day. I remember it like it was yesterday and remember thinking how engaged everyone was in the project. It was a great day.

One of the best memories I have of my time at the University of Huddersfield.

Final Year Biology student. Now at Siemens Healthineers. July 2023.

I was part of the planning team for this event and a participant on the day. It took lots of planning and practice to make the day run smoothly and was a great experience. We all breathed a sigh of relief when we achieved the world record!! One of the best memories I have of my time at the University of Huddersfield.

It was a big deal as I still remember it today!

PhD student. Now at Thales UK. July 2023.

I was trying to recollect my specific involvement in the DNA record event and I think I was asked to come and help without a designated area to support. So, I remember going down and talking to people taking part and asking if they needed anything. I was more facilitating to grab the volunteers with t-shirts and handing out any instructions from what I recall. Lots of energy and team work, I was grateful to be involved in a small way. It was a big deal as I still remember it today!

I've used it as a discussion point in interviews

First Year Biology student. Now at BSI. Jul 2023.

I was a participant in this event. I have fond memories and I still tell the story to this day! I've referenced it on my CV previously and used it as a discussion point in subsequent interviews.

The memory of this event has always stayed with me

Member of The University Bioscience Society. Now at Your Environment Ltd.. March 2024.

The memory of this event has always stayed with me. My day started off as usual, but I was eagerly anticipating finishing my lectures and reaching the venue. Upon arrival, there were only a few individuals present, and I immediately took charge of organising tables, ensuring that younger students had everything they needed.

As the venue filled up, all was set for the timer to begin. After each section was completed, senior students were called over to verify base pairs and authorise the correctness of their segments before passing them to us.

My task, along with other students, was to string each segment onto a thick wire. The first few meters came together easily, but as the DNA piece grew longer, it became more challenging to string together—especially when we reached the 20m mark. Eventually, teams of students (7 on each side) were engaged in a tug-of-war with the wire, connecting the segments together.

With the last segment in place, the timer stopped. The wait for authorisation from the Guinness Book of Records took around 30-40 minutes as they meticulously checked each base pair.

Finally, the news arrived—we had set the record! The room erupted in cheers, and the photography session commenced.

It's a source of great pride for me to have been part of this event.

Now, it stands as an achievement and interesting fact under my name in my office for everyone to see. 😊

It was fun, time critical and an event that went down in history.

First Year Biology student. Now at NHS England. March 2024.

How time flies! Rewinding back to 2008, I can proudly say I was part of building the 24 metre long model of the insulin gene! It was fun, time critical and an event that went down in history.

This definitely is something to highlight in my list of achievements, no doubt one of my favourite memories during my time at the university.

The DNA model was probably one of the biggest events that we pulled off during my time in Applied Sciences.

Staff member from the University School of Applied Sciences. Aug 2023.

The DNA model was probably one of the biggest events that we pulled off during my time in Applied Sciences. It was a wonderful event to be part of and great to work with the students of the Bioscience Society and all the pupils from the local schools and colleges. I am really proud of the world record. On the day, I remember that the pupils were very confident and able in building the smaller sections.

My role was to produce a video documenting the day, and to look after the IT and AV for the presentations that took place before and after the building sessions. Looking back to the video now it's definitely of its time, reflecting the limited equipment available back then, although I think it's got a few more production values than your average home movie of the era! I remember setting up an ancient camcorder in long play mode as a kind of timelapse, which took ages to capture and process. I was using a newer digital camcorder and my colleague David (who was taking still images) and I spent most of the day trying to keep out of each other's shots.

Obviously local celebrity Dickie Bird was a popular choice of independent witness, he spent a long time autographing the event shirts for many of the students involved. It was a huge team effort, particularly with the student society members who were heavily involved with running and organising the event.

The end was very exciting, and I remember there was some urgency to beat the record.

Staff member from the University School of Applied Sciences. Aug 2023.

There was such a happy buzz in the room as everyone got on with it. The checking was carried out by the Bioscience Society students and it was great to see them all pulling together and doing such a great job. The end was very exciting, and I remember there was some urgency to beat the record, but we made it. When I look back now, I think that Jeremy did such an amazing job in bringing all these people together. Including the undergraduate Bioscience Society which is still running today.

The only hitch was threading the units onto the steel wire as we hadn't reckoned on so much friction.

Staff member from the University School of Applied Sciences. Now retired. Sept 2023.

Firstly, it seems like a long time ago and another era to me but my life has changed quite a lot since. I have only good memories of it, it felt like a real achievement and a real bringing together of the community, plus putting the biology dept. on the map. Credit must go largely to Jeremy, who conceived and planned and pushed and cajoled very effectively throughout.

We had a really enthusiastic and competent set of students in the Biological Sciences Society that year and they formed a really effective core of helpers right through. I remember quite a few planning and testing sessions where we worked out how long it would take for a group to put together their section of base pairs. Again, this was done with a lot of maturity and really forged good links between students and with staff.

I'm not sure but did we also bring in students from Greenhead at this point? I know friends of my son Neil were involved in the final day. The day itself I remember as being quite stressful and hectic but overall enjoyable. I think I gave a short talk somewhere in the middle to remind people of the significance of DNA. I remember Steve filming it and Dickie Bird being there.

I think the only hitch was threading the units onto the steel wire as we hadn't reckoned on so much friction as things got longer but I think brute force saved the day. So overall it was a great experience, a great idea and one I'm sure most involved will remember for a long time. As an aftermath I remember a lot of discussion with you, and Rob Smith, about how and where to site the final model. The procession to carry the model, as a snake, across the campus also sticks in my mind.

Looking back it was such a privilege to have been asked and a very fun day

Sixth form student from Rastrick High School. Now at ABP UK. July 2023.

I remember it been very busy, it must have taken some organising! I recall feeling excited to be involved in breaking a world record attempt, does it still stand? Looking back it was such a privilege to have been asked and a very fun day so thank you for letting me be a part of it.

I certainly told people closer to the time about the event but as the time has gone by i can't say that I remember the last time I told someone. In terms of thinking back up until your (Jeremy's) message I

can't say I'd thought about it and as I say it was a proper blast from the past. Especially reading the names of the people from my school who were there.

I was put forward for this opportunity by my biology A level teacher.

Sixth form student from Greenhead College. Aug 2023.

I had the pleasure of working with the University of Huddersfield's Department of Chemical & Biological Sciences in achieving a successful Guinness World Record attempt to create the largest accurate model of DNA. The successful model assemble in one hour, was 70 feet 6 inches in length and the exact replica of insulin coding DNA. I was put forward for this opportunity by my biology A level teacher.

I believe our sequence was initially constructed incorrectly

Sixth form student from Shelley College. Now at Haemonetics. Sept 2023.

I recall the day we created the DNA world record at the University. Myself and a couple of friends from Sixth Form travelled in from the nearby college to take part. I recall splitting up into groups and being allocated our base pairs prior to construction. I believe our sequence was initially constructed incorrectly and we had to quickly rush back and fix during the point we constructed the final gene. It felt good to have accomplished something as a group. When the sequencing was complete and constructed it was great to celebrate with everyone and have Dicky Bird there to validate everything.

The event was a good opportunity to physically interact with something that continued to drive my passion for biology and I remember feeling generally enthusiastic about a future in the field of biology. I continued from this point studying Pharmacology and now continue to work in Medical Sales as a result of my continued passion and interest in the human body and it's dysfunctions.

I remember a very interesting talk about the discovery of insulin.

Teacher from Greenhead College. Now a Parish Counsellor. Sept 2023.

I've just enjoyed watching the video of the 'DNA longest sequence world record attempt', and it was lovely. I had forgotten how exciting and fun the event was. Even before the day our students were engaged and interested, as they had been tasked with producing a poster. I may be biased but I thought that they did a great job and produced a very professional poster. After the event they produced a second poster documenting the occasion, and these 2 posters were displayed in the biology department for many years afterwards.

On arrival at the university on the day the students were a little bit nervous, but they soon relaxed due to the warm welcome, and settled into the task. For many of our students they would have been the first generation of their family to be thinking of attending university, and this event was a great taster for them.

As their teacher, I expected to be on the periphery but was pleased to be able to take part and to do my bit building the DNA sequence. I had forgotten that we had a practise run first and that the sequences were checked carefully to build in the accuracy. All very precise and professional.

I can't remember who presented, but I remember a very interesting talk about the discovery of insulin. We were told about when it was first used, it was in a long old-fashioned ward and all the patients were in a diabetic coma. Apparently as the patients were injected as the doctor passed from bed to bed, the patients began to come out of their coma. It was as if a miracle had occurred! This story gave me a tingle down my spine, and over the many years teaching about insulin I always told my students this story.

It was genuinely a great day out and one of the more memorable days during my time at Greenhead College.

Then Dickie Bird put on the final sequence and excitedly shouted "that's out".

Jeremy Hopwood. Senior Lecturer and DNA world record organiser. Now an independent scientific consultant. Sept 2023.

Shortly after Rob Smith became the Dean of the School of Applied Sciences, he called me in to his office and said he wanted to build the longest model of DNA and could I organise the event. It seemed a fairly off the wall request and I thought how on earth am I going to do this. But its one of the most memorable events I organised at the university and I look back at it with pride.

I remember putting an application in to Guinness. It was quite bureaucratic and involved filling lots of forms. There were costs involved too as the process was faster for a fee and it became a balancing act. At the time I thought the money was abit outrageous and that Guinness were taking too much credit but now I can see that their authentication processes were protecting both their brand and our record.

The actual record didn't require a specific sequence and it could have been random, but we chose to use the sequence for the insulin gene to give the record more purpose. I trained up volunteers from the student Physiological Society to build specific sequences so that they would know how to do it on the day and be able to teach the participants. We had weekly sessions after Christmas and I remember getting a bought of tonsillitis in February and still turning up to the sessions because the event was drawing near. There was a lot of organising from invitations to sixth forms, to catering, to parking to working with Tony Lelliot of estates to find a way of holding and suspending the model. We chose a strong wire rope in the end.

Then the day arrived. A lot of time in the morning was given over to lectures and training sessions. So that each group of sixthform students and their teachers knew what to do. We had a lunch and then we did the record. For the most part it went very smoothly, suspiciously well in fact, and the individual sequences were built, threaded onto the wire and then connected. It was real teamwork and I remember everyone being very busy. But then something happened. The 22 base pair sequences, which had easily threaded on started to get stuck. At this point the Vice Chancellor, Dickie Bird and Graham Leslie appeared. I couldn't understand what was causing the problem. More and more force was required and in the end everyone in the room was involved in a tug of war to get the sequences moved down the wire so they would connect. Somehow, we got all the models connected. It made such a grand finale on account of all the physical effort. Then Dickie Bird put on the final sequence and excitedly shouted "that's out". I don't remember much else about the day as I was very euphoric.

Latter I discovered that a single plastic spacer was missing. These small plastic rings were used all along the model to separate adjacent base pairs and they enabled to model to move along the wire

rope. I had not considered the implications of losing a single spacer. If another space had been left off then the friction might have been too great, preventing the tug of war from succeeding and the record might not have been broken on the day.