

Meet our New Heads of Science

This term new Heads of Department started in the three Science subjects. They were interviewed by a Six One about their roles and their passion for their subjects.

Sophie: What do you love most about your subject?

Dan Clinch, Head of Chemistry: What got me hooked on Chemistry when I was at secondary school was firstly the exciting visual aspect of the subject but beyond that and deeper than that was the realisation that this subject gives you a different vision of the world around you and you start to understand why things behave as they do. You learn the secrets of all the different things that surround us and you appreciate everything you see in a whole different and deeper way. That's when I really started to feel that the subject was resonating with me and that's what I hope to instil in people I teach.

Prof Becky Parker, Head of Physics: I love Physics because what we're aiming to do in Physics is try and understand the ultimate universe and how it started, how it progresses through time, what's the nature of time. But then as well as those huge, big mind-blowing concepts we're trying to understand (for example) what makes this table, if you then delve down really deeply to try to see what this table's made of you get to atoms and then you get to elementary particles like electrons and then you go into the nucleus and you see quarks and then you try and work out how they interact. We're all made of stardust, we're all made of stuff made in stars and how do you understand that better. And of course all the other stuff which isn't such large-scale like how does electricity work and forces and how do you know how much heat energy to put into make a nice cup of tea. As well as all that side you have to learn how can Physics solve things like the climate crisis, how can Physics help to understand the limits of AI. All those big questions, Physics has such a large part to play.

Christian Brady, Head of Biology: Biology is such a wide field within Science and really is at the core of how all things work on the planet. Everything really does stem back to living organisms: all our food, nutrition, how we breathe air, how oxygen and carbon dioxide are exchanged in plants and animals, how all the different chemistry of a planet really is derived and transferred through living organisms. Physics is also important within understanding how living organisms, living systems and biological systems work but essentially Biology is all about understanding the physiology of living organisms.

Sophie: What do you want girls at Benenden to get out of your subject?

DC: What I'd really love to foster is confidence in the subject, confidence to take on the challenges that the subject can sometimes present. I think it's a great subject for developing independent learning and also I'd like to instil the belief that a career in STEM-related subjects can open lots of doors for future careers and is an exciting place for girls to look for their futures beyond school.

BP: First of all I want them to love it because I love Physics and one of the big things which always worries me is why doesn't everyone love Physics! It's also so useful for them because if they're going into engineering, if they're making new technology, if they want to develop their mobile phone, if they want to work in finance: Physicists are everywhere in those big jobs where you need analytical skills, you need problem-solving skills, you need to be curious, apply your analysis to solving big problems about the world. I want them to see what possibilities there are for careers, I want them to think 'this is an amazing subject' and what I really want them to think is how can they contribute themselves and that is something I feel very passionate about – how can we bring what we teach in school to be more contributing to real science. A whole group of my Six Ones are going to be working analysing data from the Spitzer Space Telescope to then contribute suitable sites to look at when the James Webb space telescope gets sent up by NASA. Last year four Year 10 girls actually discovered a new class of star with this project and the key thing is I think that most people don't realise is that school students can make really valuable contributions in Science. It's partly because they're bright and they're interested and they are not set in ways of thinking, they can think outside the box. So not only do I want girls to love Physics but I want them to contribute and see how they are Physicists because

everybody needs to be a scientist in this modern technological world so we need them to be equipped with these skills.

CB: In Biology principally I'd like them to really enjoy the subject and have that excitement and that enthusiasm to understand how different biological systems and living organisms function and to bring in different skills from the other STEM subjects such as Chemistry and Physics knowledge and being able to apply that in real life and into future studies. It would be amazing for students to go ahead and study Biology or Biological Sciences at university and be part of that field of the ever-developing research and technique and understanding.

Biology is crucial to understand because it really is the core foundation to many day-to-day and life factors that people are interested in.

For example, nutrition. Diet and exercise is something which pretty much everybody considers or takes part in, and having a biological understanding of how different foods or how different exercise influences the body and influences overall health and wellbeing, that all stems back to understanding basic Biology.

Sophie: What is your vision for the Department?

DC: I'd like it to continue to be a place where exciting things happen in the classroom. I'd like to really capitalise on the fact that we've got some fantastic learning opportunities for girls to do things in the subject that are also outside the classroom so we have some extraordinary projects that go on in this department and I'd really like to bolster those opportunities. I'd like girls to see this building and this subject as a place where they can come and do research and really push themselves in this subject.

There's an opportunity at this time at Benenden but also at this time in this country and the world for girls to be looking at STEM, and looking at Chemistry as part of STEM, as a real opportunity and a really exciting area in which to work.

BP: We've got lots of ideas across the whole of science to do with creating a Benenden Tree of Science where we put some of the early pioneer women who started in Benenden on the roots and see all the amazing science they have done and how we can stand on their shoulders and what current Seniors are doing and what current girls are doing in science to show the possibilities for girls to continue with this fantastic scientific legacy from Benenden. In Physics I want us to do what I did at my last school which was to put an experiment in space and I want us to contribute to NASA conferences, the next time we go to CERN I want us to present, I want our students to be innovative amazing physicists of the future and I want them to love it as well, I want them to really understand it, feel as though they've got the measure of the subject, they feel confident and then they feel confident to go on and contribute to new Physics of the future.

CB: My vision for the Biology Department is to really enthuse, excite and invigorate the teaching and learning for the students by bringing new teaching strategies, exciting resources and technology which helps bring Biology to life.

One of the most exciting things about Biology is the fact that the field is always changing and updating with new understanding through new developments in technology, new techniques and new research – there are new discoveries every day, every week within biology which is brilliant because we can bring that into lessons, bring that into the classroom and try and enthuse the students into understanding the most recent developments and potentially they will be going away to university studying and even developing some of these techniques themselves.

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