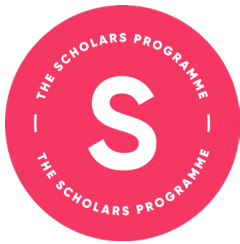


# The Brilliant Club Case Study



**Tutor Name:**  
**Joseph Fernandez**

**PhD Research Area:**  
**Compact Stellar Mergers: the origin and electromagnetic counterparts of gravitational waves**

**PhD University:**  
**Liverpool John Moores University**

**Brilliant Club Programme:**  
**The Scholars Programme**

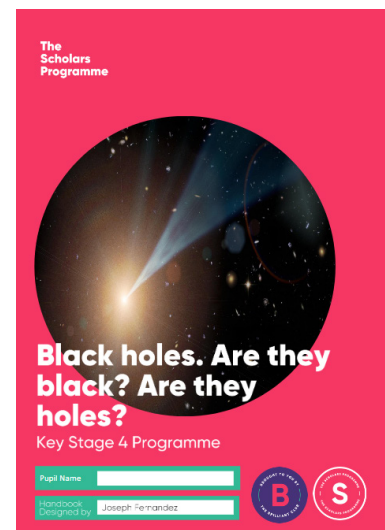


I heard about The Brilliant Club for the first time at an induction event run by my University's Doctoral Academy. I knew I wanted to get involved instantly. As much as hard work plays a factor, I am aware of how fortunate I am to be a funded PhD student. The Scholar's programme offers a direct path for researchers to reduce the role luck plays in someone attending University.

I have tutored key stage (KS) 3 and 4 pupils. For KS 3, The Brilliant Club provides pre-designed courses. At this level I have taught two topics, philosophy and mathematics. For KS 4 and above we are required to design courses related to our research. I wrote a course called "Black Holes. Are they Black? Are they holes?". The idea behind it was to use black holes as a motivation to study classical gravity. This is touched on in the GCSE and A-level curricula, but in the course the pupils had an opportunity to study it in much more depth.

The topics are much more advanced than the young pupils are used to. They are required to do a lot more thinking than they would in normal classes. Participants in The Scholar's Programme must also complete a final assignment which takes more work than anything their classmates will come across for years (for my course they are required to submit a comprehensive problem set plus a 1000-word essay). As something completely, the final assignment can be daunting for the pupils. At times you can even feel bad for asking the students to do the assignment, knowing how much work it entails. However, this assignment is key for the whole course. It is where much of the self-learning will happen, as well as much of the personal growth. (Remember how your final project felt. I imagine the assignment feels similar for the kids, albeit a little less personal).

As a tutor the difficulty lies in finding a rigorous but accessible way to present the information to the students. It is important to keep them motivated and to remind them constantly that it is OK to get stuck or to not understand things the first time around. Taking ownership of the situation is key to helping the pupils: if they don't get something, it is on you to help them get it.



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As hard as the topics are, the kids are talented and full of potential, and they do get there. The feeling you get when a 13-year-old gives Rene Descarte a run for his money, or when a 14-year-old correctly calculates the mass of the black hole in the Sagittarius constellation is amazing. At this point the most important task is to let them know how amazing what they have achieved is. In 6 months they may not remember what you have taught them. However, I like to think that they will remember being given a very hard task, completing it and the final feeling of achievement.

The Brilliant Club staff are amazing and extremely supportive. Even the feedback from the tutor selection process is enlightening (and is guaranteed, whether The Brilliant Club decides to take you on or not!). As tutors we are required to attend training weekends, covering course delivery and design, the British education system... among many other topics. I always leave these weekends with a great feeling of belonging to something bigger than myself, a team working towards a common and honest goal (this contrasts with daily research, which can be isolating and lonely at times). The first tutorial of every placement takes place during the launch trip, which happens at a highly selective University and is a great experience for the kids. It also makes meeting a new group easier on the tutor, as Brilliant Club staff are always nearby to make sure things go smoothly.

The Scholars Programme placements are hard and take up a lot of time while they last. Every hour of contact involves prep time for the sessions and marking homework assignments. When teaching you end up giving a lot of yourself, which is tiring. As hard as it gets though, it is a fabulous experience. You have a chance to pass on knowledge about a topic you are passionate about. When children learn new things or understand something that was puzzling them it is obvious on their faces. They can't help but show it, and I am glad they can't! For me it is also great to be reminded of how young minds operate. Some of the questions they come up with are truly amazing.

I think the most valuable thing the pupils gain from the programme is the experience of completing a set of hard tasks (learning new topics, the assignments, etc). It is proof for them that hard doesn't mean impossible, and that they are capable and clever. It is one thing to have your parents or teachers tell you how good you are. It is completely different (and much more valuable in my opinion) to be able to show that to yourself through your own work and dedication.

The experience is also great for tutors. If you want to pursue an academic career teaching experience is a must. A Scholars Programme placement is an ideal introduction to teaching, as you will work with small groups. The course design aspect is something that was completely new to me (and most, if not all PhD students). Choosing adequate material and designing exercises is challenging. Along the way you also learn lots about the topic you are going to teach. It takes a significant amount of understanding to reduce what seem like basic concepts to a form which school children can assimilate. Sometimes it takes deeper understanding than to pass the module where you learnt about it. As PhD students we want to achieve expertise and teaching certainly helps with that.

The current landscape of the British education system allows socio-economic factors to play too much of a role in determining whether students attend University or not. The PhD-student-community is in debt to society for the opportunity to pursue their studies. Outreach and widening-participation activities should be a part of our duties. The Brilliant Club offers a straightforward way of contributing to improve society. In return, tutors receive extra income, invaluable teaching and outreach experience, as well as a sense of belonging to a greater cause. Teaching for The Brilliant Club, as hard as it can be, is one of the best choices I have made during my PhD.