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- I had worked on the toxic effects of the heavy metal, lead and the combined toxicity of lead and another organic chemical, BDE-209 on zebrafish larvae. Gene profiling was employed to evaluate the toxicity, so this project involved a number of molecular techniques such as RNA extraction, reverse transcription and real-time PCR, to quantify the gene expression of different target genes.
- Apart from the technical skills, I have learned to be independent. This is also how FYP differs from routine lab sessions, in the sense that you could easily seek help from the neighbouring demonstrators in lab lessons and they are very eager to help you. I do not mean that supervisors and postgraduate students in the lab in the FYP will not help you, but surely, you will need to try to find out the answers by yourself first, since nobody understands your project better than you do and they are not always around when you do your experiments. Of course, your supervisor and labmates will surely be very eager to have discussion over your questions if you need. In my FYP experience, the PhD student mentoring me has graduated in the summer, so I could not get immediate help from her, therefore I would try to solve the problems by myself, and I am glad that my supervisor and labmates were also willing to help me when I needed their assistance.
- Secondly, time management and careful planning are the most unforgettable lessons. Toxicological experiments demand meticulous planning, as the model organisms would be exposed for different time periods such as for 24, 72, or 96 hours, at which the tissue samples would be collected. Let's say if you have carried out the exposure at 9 pm on day 1, you would need to come back at 9 pm every day afterwards to collect the samples for those different time points. There were still some courses that I had to take during my final year besides the FYP, so I could only do the experiments before or after lesson time. I remember one time I started the exposure at 8 or 9 pm, then I needed to come back every day at 9 pm to harvest my samples, and I left the lab at 10 something every day, which was so exhausting and unforgettable. Unlike regular lab sessions in which the instructors and demonstrators would plan everything, I would need to plan everything by myself so I would bear the consequences of my own failed planning.
- Regardless of the difficulties, I would say that FYP is a rewarding experience. I started the whole project basically from scratch, eventually I was able to address the research questions and has discovered something new. There were numerous failures and hardships, but they were worth it. Additionally, this FYP provided me with opportunities to learn a wide variety of soft and hard skills, which would be useful in research, and this has definitely prepared me for my future postgraduate research degree. Although FYP is a bit demanding, it is undeniably a fruitful experience for science undergraduates, as it allows the application of theoretical knowledge learnt in lectures and it also trains up students' thinking and troubleshooting skills. More importantly, this is a great chance for you to get a taste of how previous scientists worked out the discoveries that you have been learning during your lectures.