

## **23<sup>rd</sup> International Elementz Fair 2022**

### **Reflection by RGS Year 4 students Bridgette Kim, Lei Siqi and Tan Jia En Joie**

“The annual International Elementz Fair is an international competition open to upper secondary and junior college students. It is organised annually by Anderson Serangoon Junior College. Due to COVID-19 restrictions, the final judging was held virtually this year.

Our research study is titled “Less Mowing, More Growing” and we were mentored by our teacher-in-charge, Dr Jeffrey Lee. In our study, we investigated the effect of mowing on plant diversity in urban grass patches using Shannon and Simpson diversity indices as an indicator. We took data on the different plant species and frequencies of each species from grass patches located around the RGS school compound. The data is then processed and collated in a spreadsheet to obtain a conclusion from the results collected.

During the course of our research, we were privileged to be exposed to many molecular biology tools in the lab, which enabled us to perform DNA extraction on plant samples collected and process the DNA using PCR and gel electrophoresis before sending the samples for DNA identification. After running the DNA identification results through an online DNA database, we were able to successfully identify 12 unknown plant samples collected from the experimental plots. Upon data processing and further analysis, we were able to illustrate with supporting data and graphical presentations that mowing of plant ecosystems will decrease plant diversity.

After receiving feedback for our slides, we spent many hours and RA sessions preparing our presentation for the fair. Taking into consideration the feedback given by our teacher-mentor Dr Lee, we had to refine our deck of slides multiple times and change our phrasing to make sure that the presentation was succinct and offered the clearest perspective on our study. The process is a lengthy but fulfilling one. Finally, the day of the final judging arrived (19 April 2022). We conducted a five-minute presentation on our research study and engaged in a question-and-answer segment with our assigned judge.

In the end, we were honoured to have been awarded the Gold Award for our project. We believe that the process of working together to complete this scientific endeavour is the most important part of our experience, rather than our results. We have learnt so much from our teacher-mentor, as well as from each other during this year-long research experience. We feel that we have gained independence and critical-thinking skills while forming valuable relationships with one another. We are proud that our hard work over the past year has been acknowledged.

Undoubtedly, we have our fair share of challenges on the journey. When we initially started the project, COVID-19 was rampant, and we had to conduct all our first introductions over Zoom. We took some time to warm up to each other, but once we did, we became comfortable sharing all our adventurous thoughts and ideas regarding our research project, and everyone’s enthusiasm helped to drive our research project forward. There were multiple times when we faced difficulties. For example, we processed all our data three different times just to make sure our data represented our derived conclusion in the most accurate way possible. These experiences have honed our resilience as a team and allowed

us to form bonds with each other as we started staying back in school more often and coming back to the lab during the holidays to complete our projects on time.

Even though the going can get tough sometimes, we all agree that we could never ask for a more joyful learning opportunity and experience. Overall, the experience of carrying out our research project has also honed our creative and critical thinking and problem-solving skills. In terms of hard skills, we were privileged to have access to high-quality technologies and lab equipment that fully allowed us to gain exposure to and learn new laboratory techniques, as well as enable us to carry out our desired experimentations with little limitations. In the process of discussing our study, we were also able to stretch ourselves further in the study of Biology as we are exposed to biology concepts beyond the classroom setting, which has also significantly widened our horizons on the applications of Biology in the real world.

To conclude, Elementz 2022 was truly a memorable and enriching experience. We are grateful for this opportunity to pursue our passions in scientific research. Our team would like to thank our teacher-mentor, Dr Jeffrey Lee, who patiently guided us every step of the way; and our lab manager Ms Wong Su Zhen, for always being there to help us with our lab equipment and procedures. Finally, we would like to thank everyone around us who supported us when we were facing difficulties and our family and friends who accommodated us when we had to carve out more time for our project."