

Dates:	Observations, events, and research are undertaken.	Reflections (on findings, research, tasks undertaken)	Actions, and steps to be taken next time
17.03.2022	To start off my EPQ I had to understand first what I wanted to focus on. I knew biology had my interest, so I decided to write an essay, answering why I enjoy that subject.	As I started to reflect on my essay, I realised that I have mentioned the importance of living processes several times, especially those taking place in plants! Therefore, I decided to think how research on plants may have greater links with the wider world we live in.	After deciding briefly on the topic, I looked at an article about global warming. This gave a small insight into how the plants are directly linked with changes in environment and temperature, which as result has an immediate impact on us humans. This made me want to investigate the effect of temperature on plants. My next actions would include looking at more sources around this matter.
17.04.2022	Before, taking my research further I have taken a one-month online course called stem learning which would outline useful websites to search for articles and information. In addition, it also outlined what criteria I need to look for in order for the information to be valid and relevant as possible to my question.	After, reading a few more articles. I formulated a question 'What effect does increased temperature has on plant growth?'. I felt that the question is open and has numerous different approaches I can dive into.	My next step would include talking to my tutor about the best available approach that could be used effectively in order to look into the question.
15.05.2022	I have talked to my tutor about why I would like to look at effects of temperature on plants. Then she explained to me what species we can use in order to conduct the experiment.	I have looked into more detail, learning about those model species: Marchantia and Arabidopsis. That helped me with my understanding of the topic and prepared me to feel more confident when I come to work with them in the laboratory.	My further acts would include planning my time on the days I will be in the laboratory and days I will be working independently.
28.05.22	Whilst I was looking at the dates and making the plan, I understood that I had to use my time efficiently.	For this reason, I have picked the microscopy with imaging approach due to the project's short time frame and the young stages of the model species. This enabled me to be more productive and efficient with time.	The next actions would include starting to sow Arabidopsis and Marchantia into the media.
8.06.22	On the first day when I arrived at the laboratory, I prepared 4 Petri dishes with media for Marchantia (Gemmae) and 4 for Arabidopsis. Where 2 from each specie would	I would usually, try to have as many samples as I could i.e., a number of seeds on media. In order when taking measurements I could take the mean and ensure that the data is representable enough.	The next actions that I would need to take to get a step closer to my question were learning how to use a microscope and measure the effect

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Sticking to plan + noting down log of activity + what involved.

	be placed to be grown at 21°C and the other two at 28°C in growth cabinet.		of temperature on model species.
20.06.22	My tutor was teaching me how to use the Olympus fluorescence zoom microscope. Additionally, showing me the best ways of how to measure the effect of temperature on plant growth when looking at its length and area by using Fiji software program. After the collection of data, I organized it into a table at a program called excel for each species and day.	I gained a lot of valuable insight into learning small steps of how to use special software in numerous ways, organize and record data and finally gain practical skills in using a microscope.	The next step would include learning how to conduct the t-test and analyse the data collected, meanwhile drawing relevant conclusions.
25.06.22	I asked a few of my lab members to explain to me the process of aligning the data. Then I have taken an average of measurements and conducted a t-test with standard deviation included, afterwards, the data was transferred into the error bars where I could analyse the distributions of values from the mean and make conclusions.	Additionally, percentage change was also done for each day for Marchantia and Arapodopsis at 21°C and 28°C degrees which allowed me to compare the rate of growth within different conditions and days. Then I transferred the data to the report.	To develop my findings and understanding even further I would need to look at very similar investigations on temperature-affecting plants and compare the findings in the report.
31.08.22	As I finished the report, I reflected on elements that I did manage to cope with success and some that I need to work on.	For example, I believe I did manage successfully with keeping up with the daily discovery through independent study and instant recording. As I returned home from the laboratory, I continued to actively research more information on the question that I came up with that day. However, I did struggle to select the right information. Looking at different articles and journals I have realized how many different approaches can be taken to solve a similar issue. What helped me to be critical was looking at the number of citations, publication number and the date that the resource was published.	My next final step towards EPQ would include preparing for the presentation.