



Pearson

## Project Proposal form

Learner Name

Learner number

Centre Name

Centre Number

Teacher Assessor

Date

17/03/2022

Unit 2: Field Investigation

Proposed project title How temperature affects plant growth and development.

### Section One: Title, objective, responsibilities

Title or working title of project (in the form of a question, commission or design brief)

How temperature affects plant growth and development.

Question?

Key theme ✓

Project objectives (eg, what is the question you want to answer? What do you want to learn how to do? What do you want to find out?):

- I want to learn how increased temperature may affect the plant. In particular, explore visual differences and find possible explanations for internal changes in the plant.
- Learn how to use different microscopes
- Learn in what form to record data and how to scientifically analyse it
- How to test the validity of data found online
- Learn where to search the data
- Learn what plant type should be used for such a short time frame of research
- How my findings on temperature affecting plant growth can have wider applications and links to our wider world.

If it is a group project, what will your responsibilities be?

Its not a group project

## Section Two: Reasons for choosing this project

Reasons for choosing the project (eg, links to other subjects you are studying, personal interest, future plans, knowledge/skills you want to improve, why the topic is important):

I decided to participate in EPQ in order to challenge myself outside of my A-Level studies. I wanted to learn core skills that would prepare and give a small insight into my future studying at university and career.

Biology subject particularly had my interest in A-levels, as that subject would explain about us and how everything works through scientific perspective. When covering different modules I understood that I enjoyed the most when looking at plants and how they are adapted to function effectively in our world. Additionally, I did enjoy the practical part and the use of microscopes.

Therefore, I decided to narrow my interest to plants, further formulating a question on how one of the external factors such as temperature may influence the way they function. The choice of temperature was mainly because it's a topic that is relevant to now days and does have a significant impact on our biological system.

Plants are the foundation for our lives and therefore we are fully dependent on them as they not only provide us with food and oxygen, they act as a form of inspiration and stabilise our mental health. Plants are equally if not more sensitive to the environment than mammals, as every little change in the environment has effect on them instantly. Recently, the rise in global temperature has had a negative impact on their growth and development.

Mostly stress that comes from the surrounding environment is the major cause that affects plant growth either directly or indirectly. Any unwanted change in the environment can have detrimental effects, such as having too little water can damage plants directly and in other cases it can affect plant immunity, making it harder to defend itself from disease or insect attack ultimately making it more susceptible.

Therefore, in order to provide solutions and innovations to the problem, it should be first acknowledged, researched, and understood, especially, the potential negative effects that it can have on plants. In my research, one of the environmental stresses that I will be looking at will be the effect of temperature on plants.

AG1  
Basic  
rational  
but thought  
through  
reasons  
for choice.

## Section Three: Activities and timescales



Activities to be carried out during the project (eg, research, development and analysis of ideas, writing, data collection, numerical analysis, rehearsal techniques, production meetings, production of final outcome, administration, evaluation, preparing for the presentation, etc):	How long this will take:
<p>Project Planning</p> <p>I will write an essay about what I like most about biology, that draws my attention to the points I have well elaborated on and will do further research on that by reading my a-level biology textbook and online published research. As result, I will have a greater idea of the possible question I might propose.</p>	1 week
<p>Research</p> <p>Before, taking my research further I will complete a one-month online course called stem learning which would outline useful websites to search for articles and information e.g. Mendeley reference manager software. Afterwards, I will record the useful information and articles. Then I will start writing them up in the report as a starting point of my investigation. Furthermore, I will start the experiment at the laboratory using the plants being grown and measured at different temperatures.</p>	5 weeks
<p>Development of arguments</p> <p>I will record the data of each day being at laboratory and then will start analysing it using software programme excel. I will aim to have strong quantitative data in different forms e.g. error bars, tables and t-test. This will provide me with more valid data and therefore I should be able to draw conclusions. Once that is going to be done, to develop my arguments and make my report stronger I would compare my findings with other related research.</p>	6 weeks
<p>Other sections</p> <p>I will add abstract, introduction, methodology, results and discussion, conclusion, appendix, references, bibliography, and acknowledgments.</p>	3 weeks
<p>Editing</p> <p>I will re-draft and edit my project when I have had feedback from my professor.</p>	3 week
<p>Presentation</p> <p>Will practice in front of my siblings presenting the presentation and then eventually successfully will do that at school.</p>	1 week

AO1  
Breakdown

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Milestone one: Complete Literature Review

Target date (set by tutor-assessor): May 2022

Milestone two: Research

Target date (set by tutor-assessor): June 2022

Milestone three: Conclusion and Evaluation

Target Date: September 2022

#### Section Four: Resources

What resources will you need for your research, write up and presentation (eg, libraries, books, journals, equipment, rehearsal space, technology and equipment, venue, physical resources, finance):

- I will need to use the Olympus fluorescence zoom microscope.
- I will be using my biology a-level textbook OCR
- I will be using this websites for searching journals: <https://www.mendeley.com/search/>  
<https://scholar.google.com/> and <https://www.vu.edu.au/library>

What your areas of research will cover?

- why plants are more sensitive to the environment than animals.
- Why model species are used such as Arabidopsis and Marchantia.
- How temperature is known to regulate plant growth and wider applications to global warming
- How to study plant development using advanced technology

Comments and agreement from tutor-assessor		
Is the learner taking this project as part of the Diploma?		Yes/No
If yes, which Diploma are they taking? _____		
Comments (optional):		
Is project derived from work which has been/will be submitted for another qualification?		<del>Yes</del> /No
Which qualification (title and unit)? _____		
Comments (optional):		
I confirm that the project is not work which has been or will be submitted for another qualification and is appropriate.		
Agreed:	(name)	(date)
		27/3/23.
Comments and agreement from project proposal checker		
Comments (optional): This builds on an interest + takes some known skills to be implemented + developed further.		
I confirm that the project is appropriate.		
Agreed:	(name)	(date)
		19/4/2022