Environmental Systems and Societies DP2

3.5 Food Production Internal Investigation

Background:
Hypothetically, there is enough food to feed all 7 billion people. However, our distribution of food is unequal. We know that cereals productivity has increased but why haven't all people benefited? The second green revolution has brought change to the farming practices used today. Innovations in the farming inputs and processes has increased the yield harvestable.

Purpose:
To assess the affects of differing inputs (natural and anthropogenic) on the productivity of farming systems.

Potential variables:
• Soil characteristics
• Nutrient solutions
• Water amounts
• Light levels

Equipment from the school
• Petri dishes
• Beakers
• Measuring cylinders
• Balance scales
• Nutrient solutions
• Green bean seeds

Equipment you must provide yourself:
• Soil samples
• Seeds of other varieties

Things you need to consider:
• What variables will you need to control?
• What variables will you measure and how?

Assessment Criteria:
PL, DCP, DEC

Planning

Levels/marks	Aspect 1 Defining the problem and selecting variables	Aspect 2 Controlling variables	Aspect 3 Developing a method for collection of data
Complete/2	States a focused problem/research question and identifies the relevant variables.	Designs a method for the effective control of variables.	Describes a method that allows for the collection of sufficient relevant data.
Partial/1	States a problem/research question that is incomplete **or** identifies only some relevant variables.	Designs a method that makes some attempt to control the variables.	Describes a method that does not allow for the collection of sufficient relevant data.
Not at all/0	Does not state a problem/research question **and** does not identify any relevant variables.	Designs a method that does not allow for the control of the variables.	Describes a method that does not allow for the collection of any relevant data.

Data Processing

Levels/marks	Aspect 1 Recording data	Aspect 2 Processing data	Aspect 3 Presenting processed data
Complete/2	Systematically records appropriate quantitative and/or qualitative data*, including units.	Processes primary and/or secondary data correctly.	Presents processed data appropriately and effectively to assist analysis.
Partial/1	Records appropriate quantitative and/or qualitative data but with some mistakes and/or omissions.	Processes primary and/or secondary data but with some mistakes and/or omissions.	Presents processed data appropriately but lacks clarity **or** with some mistakes and/or omissions.
Not at all/0	Data is not recorded **or** is recorded incomprehensibly.	No processing of data is carried out **or** major mistakes are made in processing.	Presents processed data inappropriately **or** incomprehensibly.

Discussion Evaluation and Conclusion

Levels/marks	Aspect 1 Discussing and reviewing	Aspect 2 Evaluating procedure(s) and suggesting improvements	Aspect 3 Concluding
Complete/2	Discussion is clear and well reasoned, showing a broad understanding of context and the implications of results.	Identifies weaknesses and limitations and suggests realistic improvements.	States a reasonable conclusion, with a correct explanation, based on the data.
Partial/1	Discussion is adequate, showing some understanding of context and implications of results.	Identifies weaknesses and limitations but misses some obvious faults. Suggests only superficial improvements.	States a reasonable conclusion **or** gives a correct explanation, based on the data.
Not at all/0	Discussion is inadequate, showing little understanding of context and implications of results.	The weaknesses and limitations are irrelevant **or** missing. Suggests unrealistic improvements.	States an unreasonable conclusion **or** no conclusion at all.