

Achievement Standard

Subject Reference	Agricultural and Horticultural Science 1.1		
Title	Carry out a practical agricultural or horticultural investigation		
Level	1	Credits	4
		Assessment	Internal

“ The sponge effect”

Name _____

Student Instructions Sheet

In this investigation you are to develop a plan, collect and process information, and present a report on ***the comparison of water holding capacity between three different soil types***

When carrying out the comparison it is suggested you use 20g of medium.

Conditions

This assessment activity is to be carried out in three parts that lead to the production of an investigation report

This assessment activity is to be carried out in **three parts** that lead to the production of an investigation report.

All parts of the assessment will be carried out individually and will be open book

Introduction:

- In agriculture different types of soil texture will influence a range of soil properties and therefore their ability to produce pastures/crops
- Different soil types have different characteristics e.g. clay soils have good nutrient status. These characteristics ensure that the plants that are grown in the media have the best possible conditions.
- It is important to work out what the characteristics of your soils are so that they can be used in the most productive way
- The purpose of this investigation is to compare the water holding of three different soils

Part 1 Develop a Plan

Use the *Planning Sheet* provided. State the purpose of your investigation.

Trial the equipment provided so you will get an idea of how to plan your investigation.

1. State the purpose of your investigation
2. Identify the key variables involved:
 - the independent variable (the variable that is to be changed)
 - the dependent variable (the variable that will be measured)
 - controlled variables (significant or relevant variables that will need to be kept the same to make your results more reliable)

3. Describe a suitable range of values to be used for the independent variable and how these values will be changed.

Trialling will help you establish this range.

4. Describe how the dependent variable will be measured.

Controlled variables

1. Identify any other variables that might influence your investigation and describe how they will be controlled or measured to make your results more accurate.
2. Describe how you will ensure that your results are reliable and that you have enough data.

Now write a detailed **step-by-step method** that you will use.

You may change your method as you carry it out as long as you describe any changes made to the method in your report.

Part 2 Collect and Record Data

- Follow your method to collect data and record the results in a table or another appropriate way.
- Remember to record any changes to your method and reasons for the changes as you go.
- Record any difficulties with equipment, gathering your data or your method.

Part 3 Process and Interpret Results

- Process your results so that you can show the trend (or lack of) or pattern in your data. This will usually involve some calculations (e.g. averages) and/or a graph.
- Record the relevant trend or pattern; this is your interpretation.
- Relate the trend or pattern to your purpose; this is your conclusion.

Part 4 Present a Report

Present a report on your investigation. This will include your:

- Trialling and planning sheet
- detailed step-by-step method, including any changes made during your investigation
- recorded data
- processed data
- interpretation of results
- conclusion that links your interpretation to the purpose of the investigation
- evaluation of the conclusion in terms of the method used. In this you may comment on the
 - reliability of data (repeats / outliers etc)
 - limitations to the investigation (sources of error etc)
 - changes made to your original method.
 - Horticultural science ideas related to the investigation. This would explain the results you obtained.

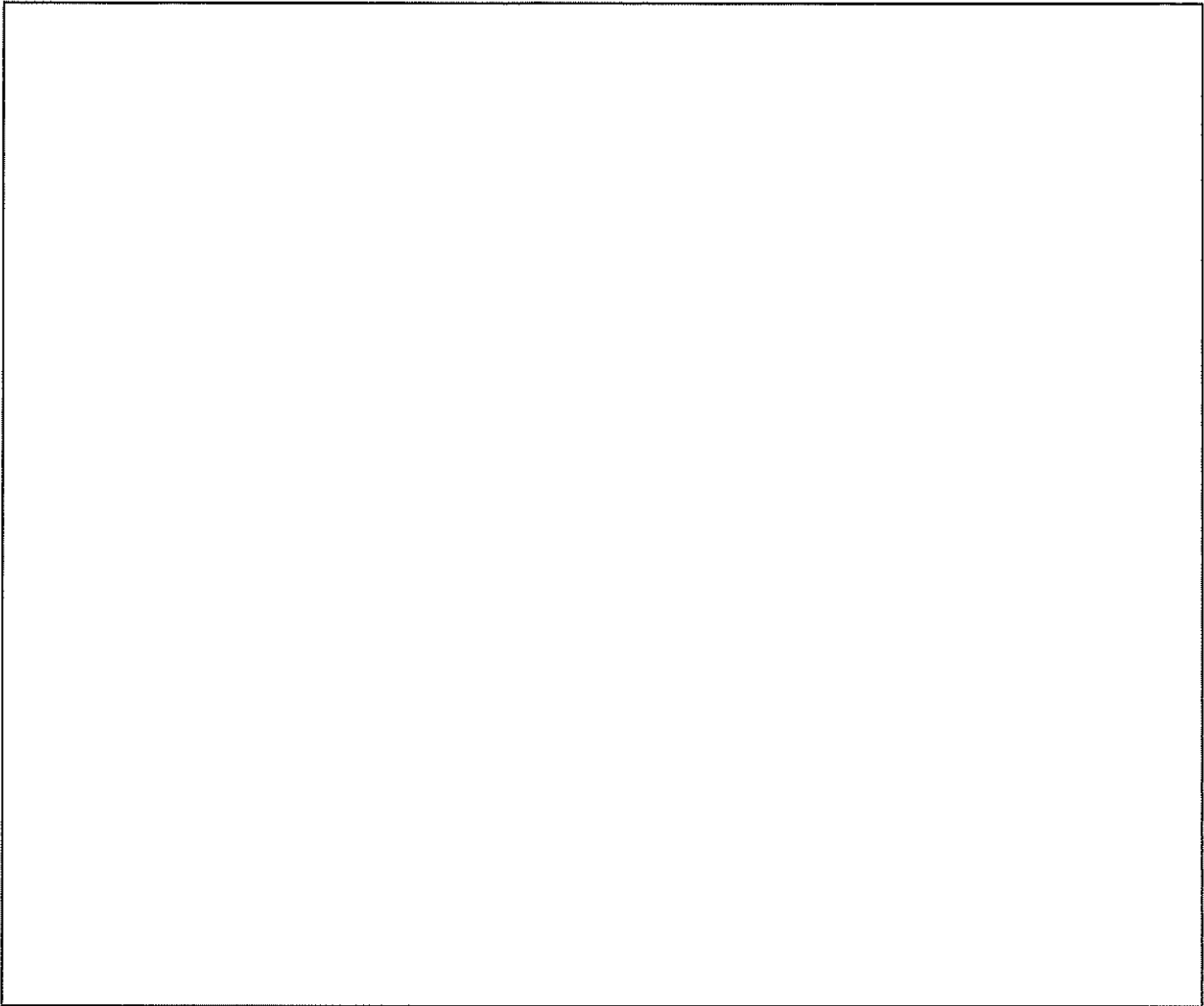
Title: " The sponge effect "

Planning Sheet Name _____

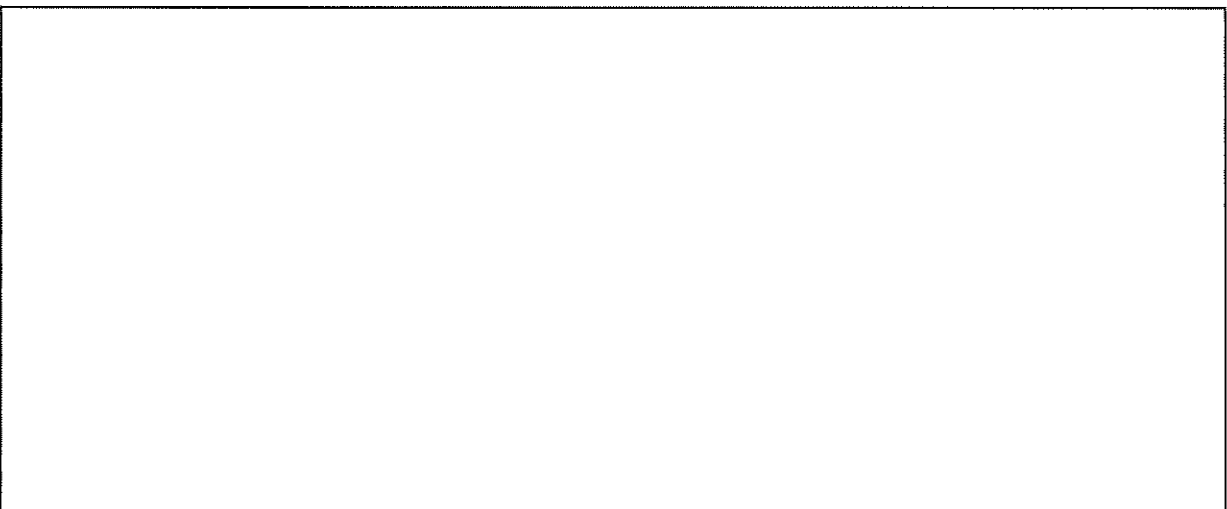
1. Purpose of investigation (this may be an aim, testable question, prediction or hypothesis)	
2. Which variable will be changed? (This is the independent variable) How will the independent variable be changed? Give a suitable range of values for this variable	
3. Which variable will have to be measured or observed in order to get some data or information from the investigation? (This is the dependent variable) How will the dependent variable be measured or observed?	
2. Other variables that need to be controlled to make your results more accurate.	
Other Variables	Describe how this variable will be controlled or measured?
3. How will you ensure that your results are reliable?	
4. Notes from your trials.	

Now use the information on this planning sheet to write a detailed step-by-step method.

Method



Changes made to the method.



Part 3 Interpret information and present a report

Interpret your processed information/data:

1. Summarise your findings in your own words

2. Give interpretations and conclusions *linked* to the purpose of the investigation

3. Evaluate the investigation commenting on:

The reliability of the data:

Limitations of the investigation (sources of error etc.)

Changes made to your original method

Horticultural science ideas related to the investigation
