

Land, water and bees – don't take us for granted: Hydroponics

Sample hydroponics results table

Introduction

Here is a simple results table for the hydroponics investigation. You may prefer to design your own, perhaps after discussion with your group about the variables you need to measure.

What and how to measure

Measuring the development of the seedling is quite challenging. You should consider:

- the variables in your investigation (for example the minerals in the solution)
- how you will assess the growth and health of the seedling
- how long the investigation will last.

Measurements and observations could include:

- seedling height
- size and number of leaves
- length of roots
- mass of the whole plug and top section of the hydroponic unit
- appearance (colour, firmness/wilting).

You will need to consider the problems associated with these alternatives, for example:

- damage to roots or shoots by removing the top section of the unit to measure the mass on scales
- damage to the shoot or leaves from measuring the seedling by laying it on graph paper or by using a ruler
- variations in the amount of water in the plug when the mass of the plug + seedling are recorded at different times.

Plan how you are going to make your measurements, taking into account the variables listed above and making sure that you have controlled any variables that you do not want to change. You could photograph or draw the seedling every day at the same time and write a description of its colour and any changes to the growth. It might be useful to attach a ruler or strip of graph paper to the unit to measure the growth. This would reduce the disturbance of the seedling.

Consider errors and accuracy: what is the minimum difference you can measure accurately and reliably (0.5 mm, 1 mm; 0.1 g, 1.0 g)?

Did you know?

If you search online using the terms 'time lapse seed sprouting' you will find many videos showing how a seedling bursts out of its seed and starts growing.



Sample hydroponics results table

Group name:

Type of seedling:

Independent variable:

Day and date of investigation	1 / /	2 / /	3 / /	4 / /	5 / /
Shoot length (from surface)					
Root length (outside plug)					
Number of leaves					
Mass of unit top + seedling					
Description of seedling					