

PRACTICAL 101

GUIDE TO PREPARE YOU FOR 'O' LEVEL BIOLOGY EXAM

1 Recording data

- correct units & accuracy

 ruler - look at 0 on commonly recorded as cm or mm.
Eg 10.5 cm → 105 mm

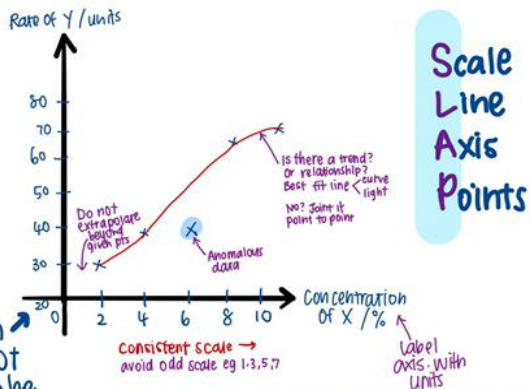
- Drawing Tables

Draw pencil & ruler!
Record data in pen!

Solution	Length of potato / cm			
	Initial	Final	Change / cm	Average
A	5.3	5.7	+0.4	+0.3
B	5.4	5.6	+0.2	

units
take into consideration duplicates & average
indicate +/- if necessary
More accuracy & no units (only at header)

3 Graphs



Origin does not have to be zero.

4 Sources of Error

* sources of errors are due to limitations of the design of the experiment.
NOT HUMAN ERRORS

- Eg. Counting bubbles
- size of bubbles may vary
 - Using diff potatoes
 - concentration of enzyme catalase may vary
- Precision of instruments**
- Given beaker to measure 25cm³ of water
- External Environment**
- For photosynthesis - external light sources
 - For transpiration - wind / fans turn on

5 Planning

- 1 Identify key variables

- independent variable
variable that is changed in experiment
Eg. concentration of enzyme, light intensity, temperature
* At least 5 data points - repeats for increase accuracy
* Include volume quantities - eg 5cm³
* Duration - leave for 5min
- dependent variable
variables that change because of independent variable. the data that is being recorded
Eg. bubbles release / min, distance moved by meniscus
- constant variable
variables that are not changed in experiment
Eg. volume of water added to test tube, No. of potato cubes added

- 2 Recording data

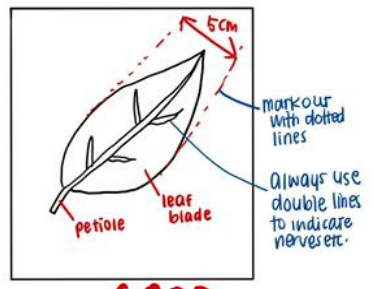
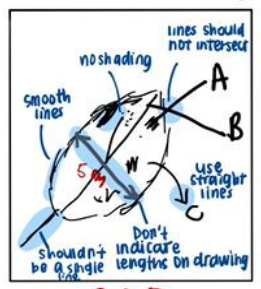
- What results are you collecting?
- Duration of wait time
Eg. volume of oxygen collected in gas syringe after 10 min
Eg. Time taken for indicator to change colour
- Qualitative Data? Quantitative Data?
Eg. Brick red precipitate was observed (observe colour change)
Eg. length of potato strip is 5.3cm

- 3 Explanation / Interpretation

If reducing sugar is present a brick-red precipitate will be observed.
The greater the no. of bubbles evolved, the faster the rate of photosynthesis

2 Drawing specimens

- Size
- proportion
- Clean lines
- Labels

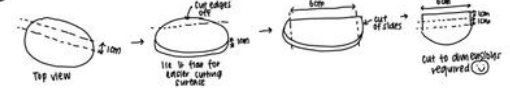


6 Practical skills

- 1 carrying out food tests

- Benedict's Test → * prepare weaker bark in advance, * Don't over fill beaker
- Biuret's Test - No boiling involved! Don't mix up with Benedict's Test label tubes carefully
- Ethanol Emulsion Test - Ethanol first then water
Always decant to remove sediments

- 2 cutting samples to size



- 3 Prepping many tubes

Start off by labelling tubes

	A	B	C
1cm ³ water	✓	✓	✓
1cm ³ iodine	✓	✓	✓
1cm ³ bile salt	✓	✓	✓

Quickly sketch our tube to help you visualise what you observe