3A Biology
General Guidelines for Drawing

1. Use an HB pencil and a good eraser.
2. Make a faint outline of what you want to illustrate.
3. Fill in details of your illustration using clear continuous lines of even thickness.
4. Make your drawing as large as possible within the available space so you can show details accurately. Position your drawing so that you leave enough space for labels. Use a ruler to draw straight label lines.
5. Do not shade. To show additional details, you may:
6. Labels must be written neatly in script against the label line and not on top of it.
7. Labels must be accurate, specific and spelt correctly.
8. Annotate or write short notes when necessary to explain points of interest.
9. Label lines must be horizontal, not crossing each other or carry arrowheads or dots.
10. Label lines must touch what they are supposed to show.
11. All drawing or diagrams must have a title. It must be self-explanatory. It must be written in full caps, underlined and placed under the drawing or diagram.
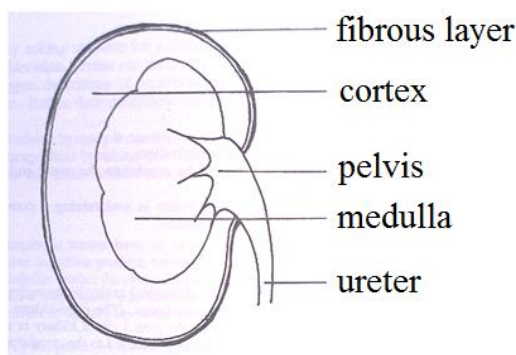12. Magnification is shown below the drawing as 'X' (times) the number. **Calculate: Original/Actual size**

DIAGRAM OF LONGITUDINAL
SECTION OF THE KIDNEY

General Guidelines for Tables

1. Give each column of your table a proper heading. If you are recording quantities, the units in which they are measured should be placed as part of the heading. Eg.

Temp./°C
53
80

NOT

Temp
53°C
80°C

2. Place the independent variable in the first column and the dependent in the second and subsequent columns.
3. Do not leave spaces or put dashes in a table for measurements that were not taken. Instead record ND (no data), or if the value is zero, record '0'.
4. Give the table a meaningful title which should be placed above the table.
5. Titles are written in full caps and underlined.
6. Tables can also be used to record observations which are not numerical but observations.
7. Whenever you use symbols in a table you must give a key, placed below, to explain what the symbols mean. Samples of Tables: 2.1, 2.2, 2.3

3.1   RESULTS OF AN EXPERIMENT TO INVESTIGATE THE EFFECT OF TEMPERATURE

TEMPERATURE/°C	NO. OF BUBBLES/MIN.
0	0
10	1
20	8
30	20
40	35
50	5
60	2
70	0

2.2   COMPARISON OF HUMAN MILK WITH COW'S MILK

CONSTITUENT	AMOUNT g/100 g milk	
	Human milk	Cow's milk
Water	88	88
Protein	1.9	6.5
Fat	3.8	3.7
Lactose	7	4.8
Vitamin D	ND	ND
Vitamin C	5	1.6
Roughage	0	0
Calcium	33	125

3.3   TABLE SHOWING CHARACTERISTICS OF FOUR DIFFERENT FRUITS

CHARACTERISTIC	MANGO	PIGEON	ORANGE	COCONUT
Type of fruit	drupe	legume	berry	Drupe
Average weight of fruit/g	120	20	150	200
Color when mature	Orange/red	Brown	Orange/yellow	Brown
Average number of seeds	1	5	8	1
Method of dispersal	Animal/man	Self	Animal/man	water

General Guidelines for Graphs

1. Draw the axes. A horizontal line represents the X axis while the vertical line represents the Y axis. The independent variable should be plotted on the X axis and the dependent variable on the Y axis.
2. Label the axes fully. Eg. Temperature/°C, Weight or Mass/g, length/cm.
3. Divide the axes into equal parts using short bars. Choose a proper scale. Eg. 1 cm on the Y axis = 10 snails and 1 cm on the X axis = 1 month.
4. To plot the points, use symbols large enough to be clearly seen but not so large that the actual points cannot be made out. Symbols use can be dots and circles, small triangles or crosses.
5. Join the points on the graph with straight lines which should be neat and accurate.
6. Give the graph a meaningful title. Eg. 'Effect of temperature on the rate of breakdown of starch by ptyalin'
7. Place the title below the graph. It must be written in full caps.
8. Sometimes you may need to put two or more sets of results in the same graph. This can be done by using different symbols for each set. Use a key to indicate which set of results each graph represents.
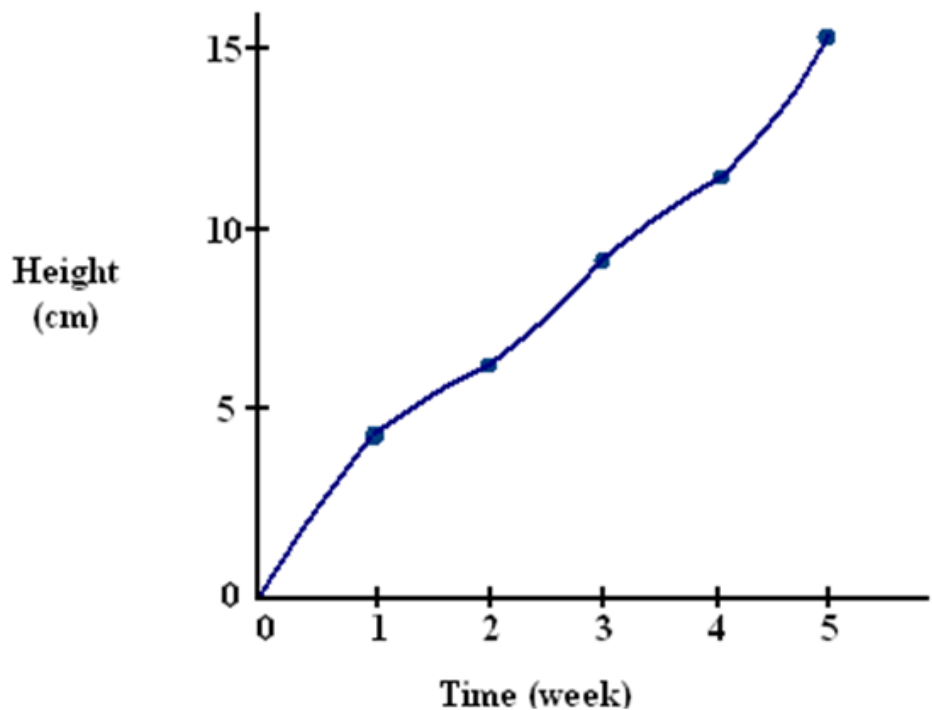
**GRAPH SHOWING THE RESULTS OF GROWTH
SEEN IN A PEPPER PLANT OVER A TEN-WEEK PERIOD**