



## General guidelines for writing laboratory record book for Biology subject

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**Abstract :** Practical record maintenance is an important part of any subject involving practical. The current study discusses about the about the aims and objectives of biology practical including the various method and procedures involves in maintaining a good practical record book for the learner. Here, the author discuss only the general format in maintaining and writing a practical record book which may differ in accordance with different experts and teachers.

**IndexTerms – Biology, laboratory, record book.**

### I. INTRODUCTION

As in any other science subject, practical have an important role in Biology too. The purpose of teaching biology is not only to acquaint the learner with biological terms, facts, concepts and principles but also to prepare him/her to understand these concepts by doing exercises relating to them. Self-experience not only eliminates doubts and misbeliefs in one's mind but also generates an interest in the subject. Maintaining a proper biology practical record, to some extend proves the sincerity of the learner.

### 1. THE OBJECTIVES OF BIOLOGY PRACTICALS

When developing a laboratory manual for biology, it is necessary to remember the objectives of practical in biology.

- i) The main objective of biology practical is to provide a first-hand experience to the learner;
- ii) To convert theoretical knowledge into practice;
- iii) To develop observational skills by spotting and writing the characteristic features of a specimen or object;
- iv) To develop manipulative skills in arranging and handling the apparatus and instruments and taking readings on them;
- v) To develop a skill in handling apparatus and mounting of specimens;
- vi) To draw, label and record experimental results and interpret them;
- vii) To develop scientific skills and methods among the learner;

### GUIDELINES FOR WRITING LABORATORY RECORD BOOK IN BIOLOGY SUBJECT

A laboratory manual plays a crucial role in enhancing the students learning. It has to be prepared in a simple and feasible manner so that every learner will be able to understand every contents of it. The following are mentioned guidelines for preparing a biology laboratory manual:

#### i) *Format to be followed while preparing biology practical manual*

1. Aim : It defines the scope of the exercise. Here, there should be a clear stated statement of the problem or exercise that will be performed.
2. Introduction : It describes the purpose of the experiment. Any general information that the learner needs to know with regard
3. Objectives : The objective of an experiment gives you an idea about the skills and knowledge to be developed after performing that experiment.

4. Principles : It highlights the concepts and background knowledge relating to the experiment, which should be known to the learner in order to perform the experiment in a meaningful manner.
5. Materials required: Listed various materials, apparatus etc. required to carry out the exercise.
6. procedure: It includes the steps to perform an experiment in a sequential manner. The procedure should clearly states all the required steps and measures that have to be followed during the practical.
7. Precautions : The precautions to be taken in carrying out the exercise are listed in this part. Any specific precaution wherever necessary is listed at the relevant step of the exercise.
8. Observation and Documentation : A detailed format of observations, step by step and their recording is given in observation and documentation. An effort has to be made by the learner to adopt a self-interactive method of recording these observations.
9. Diagrams, wherever necessary, has to be drawn in biology practical. The method of labelling should be clearly instructed to the learner.
10. Evaluation: Evaluation has to be done after performing each experiment. At the end of each experiment, a few questions have to be incorporated to consolidate what has been done and to check the learner's understanding.

#### ii) ***Scheme of practical examination***

There must be a scheme of practical examination stated in every laboratory manual. The mark distribution should be clearly stated in it.

Sample: The distribution of marks is as follows:

- (i) Performing an experiment 4 marks
  - (ii) Submitting a project report 3 marks
  - (iii) Identification of given samples 4 marks (4 samples)
  - (iv) Preparing mounts 3 marks
  - (v) Maintenance of Record Book 3 marks (vi) Viva Voce 3 marks
- TOTAL 20 MARKS**

#### iii) ***Safety in the laboratory (do's and don'ts)***

In every laboratory manual or Lab, it is mandatory to have a clearly written safety measures that has to be taken. Some of the most common do's and don'ts in a laboratory are:

- (i) The students should be well aware of the exercise they are going to perform in the laboratory.
- (ii) The instruments, glassware and any other equipment should be kept clean at its proper place before and after its use.
- (iii) The microscope and other delicate instruments should be handled gently and properly and should be atleast 5 inches from the edge of the table to avoid its knocking off accidentally.
- (iv) Do not throw any broken glassware in the sink. It should be thrown in the dust bin.
- (v) Whenever working with the sharp instrument as blade/scalpel etc, be careful not to cut or puncture your skin.
- (vi) Do not inhale, never taste or apply stain or any chemical as it may harm.
- (vii) (vii) Never eat in the laboratory to avoid infection.

#### iv) ***Instruction on maintaining of a recordbook***

A lab manual should have a clear instruction for the students on how to maintain and write practical record book. Different teachers may prefer different styles of recording a practical but the sequence is generally the same for all biology subjects.

- i) Aim of the exercise.
- ii) Principle
- iii) Materials and method used
- iv) Procedure
- v) Observations
- vi) Precautions taken during experimentation

### **Conclusion**

Practical learning or activity based learning is the need of an hour. Each topic or lesson taught, when supplemented with practical work helps the learner's conceptual understanding. A laboratory manual provides instructions on how every task has to be performed in a laboratory. Therefore, a laboratory manual has to be precise and reliable focusing on bringing desirable knowledge and achieving the aims of education.

### **References**

1. Drury, H. 1997. How to Write a Laboratory Report. Learning Centre, University of Sydney. [www.sydney.edu.au/stuserv/documents/learning\\_centre/lab.pdf](http://www.sydney.edu.au/stuserv/documents/learning_centre/lab.pdf).
2. Chattisgarh State Open School. 2020. Biology laboratory manual. [https://sos.cg.nic.in/E-Books/12th/English/eng-book%20314%20Biology/Lab\\_Manual.pdf](https://sos.cg.nic.in/E-Books/12th/English/eng-book%20314%20Biology/Lab_Manual.pdf)
3. Northern Arizona University. Creating a high quality lab manual. [https://www.cefn.s.nau.edu/~edo/Classes/CS477\\_WWW/Assignments/RESUSABLE-docs/Lab-Manual-gdlns.html](https://www.cefn.s.nau.edu/~edo/Classes/CS477_WWW/Assignments/RESUSABLE-docs/Lab-Manual-gdlns.html)

