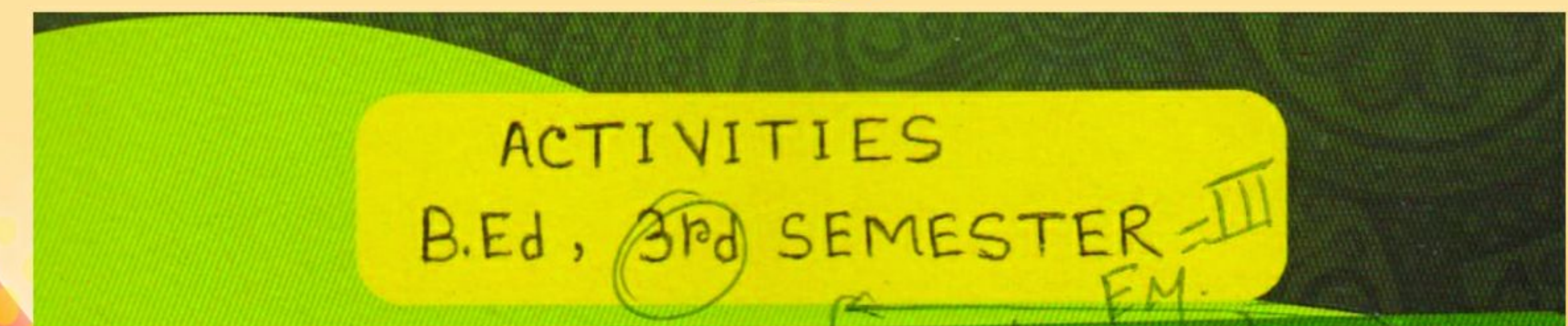




MOTHER COLLEGE OF EDUCATION (B.Ed & D.Ed)

(Approved by NCTE & Affiliated to SCERT, ANU & Govt. of A.P.)
DARSI - 523 247, Prakasam District, A.P.



Name

Subject : PEDAGOGY OF BIOLOGICAL SCIENCES

Roll No.

Register No.

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Activity - 1

Make a survey on the problems of environmental pollution in your locality and record the observations and submit a report.

Locality: VIP Road Area

City: Kolkata

State: West Bengal

Number of inhabitants: 5000 (approx)

Economical Condition: middle class and upper class

Survey Duration: 01.08.2016 to 01.09.2016

Introduction:

The contamination of environment with harmful (toxic and poisonous) substances due to certain natural phenomena and human activities is called environmental pollution.

Any substance that causes pollution is called pollutant. A substance that causes pollution is called pollutant. A substance becomes pollutant when its concentration increases beyond a certain permissible limit in the environment.

Aim or purpose of the survey :

Aim of the survey is to identify different mode of pollutions for the mentioned locality, types of pollutants and there sources. The survey also aims to find out possible prevention methods for different types of pollutions.

Types of pollution:

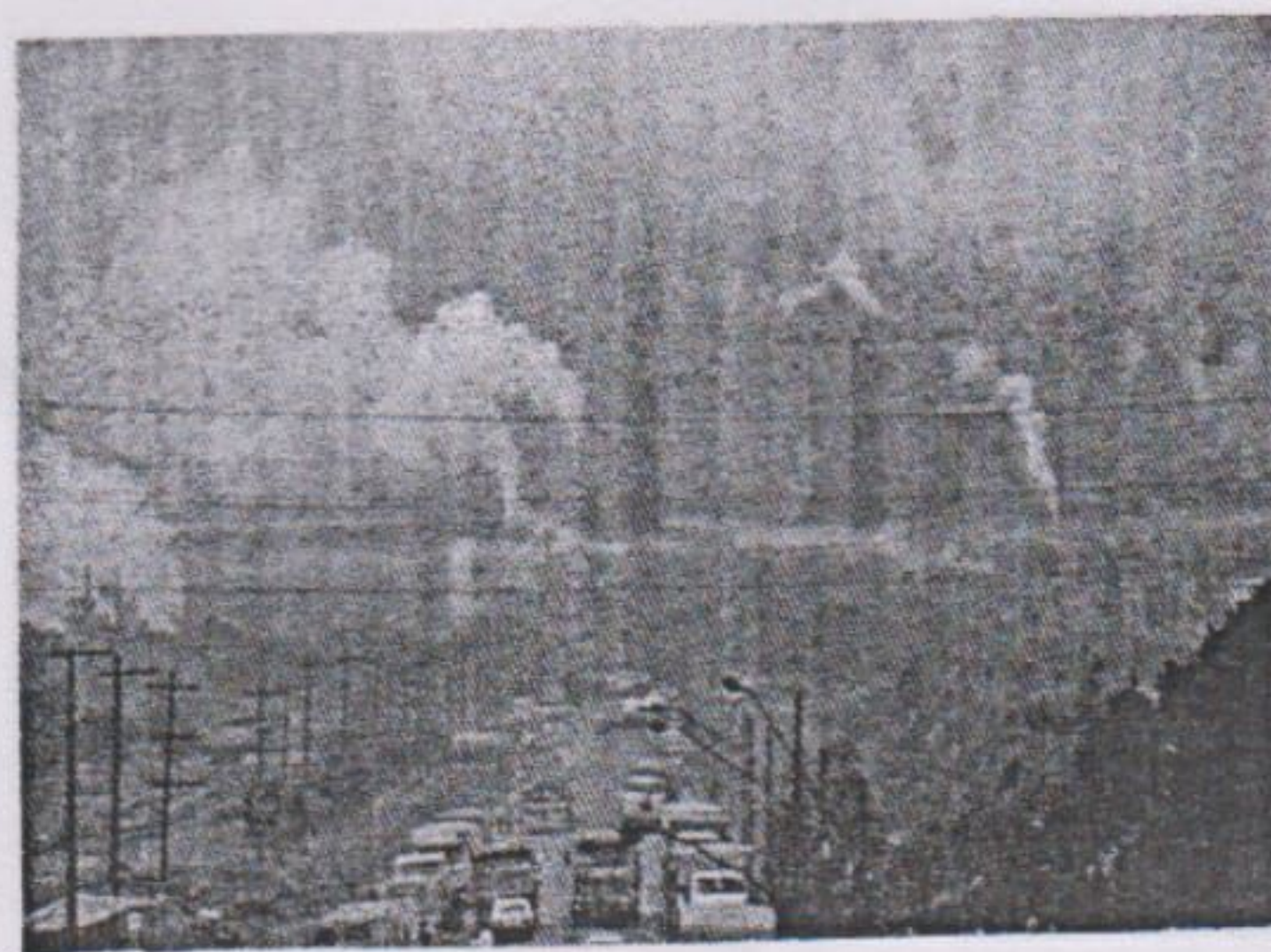
In this specific locality three main types of pollution are observed;

- a) Air pollution
- b) Water pollution
- c) Noise pollution

a) Air pollution :

Contamination of air by harmful toxic gases, smoke and dust etc. is called air pollution.

The substances which causes air pollution are called air pollutant. For this region as it is crowded with domestic



establishment, factories and heavy traffic
two main types of pollutants are observed.

a) Gaseous air pollutants

b) Solid air pollutants

Harmful effects of air pollution:

- 1) causing suffocation and frequent cough in the inhabitants.
- 2) causing congestion in elderly people and young children.
- 3) creates smog during winter.
- 4) causing irritation in eyes, nose and throat and frequent headache.

Prevention and control of air pollution:

- 1) Facilitating use of CNG automobiles which can reduce pollution rates.
- 2) Encouraging use of LPG as house fuel instead of wood, coal and kerosene.
- 3) Planting tree.
- 4) Creating awareness about air pollution.

b) Water pollution:

For big cities, rivers or lakes are the source of water. In the last few decades, the quality of water in many rivers and lakes has deteriorated and has become unfit for human consumption.



This is called water pollution. In this locality pond is used for cleaning, washing also cattles are bathed which makes the pond dirty and

unfit for other uses.

Harmful effects of water pollution:

- 1) Repeated cases of cholera, dysentery, typhoid are reported.
- 2) Skin diseases are frequent in occurrence.
- 3) causes of jaundice, diarrhoea also reported.
- 4) Natural fishes of the pond are dying.

Prevention of water pollution:

- 1) Throwing garbage into the pond should be prohibited.
- 2) More trees should be planted along side of the pond.
- 3) Washing clothes, cleaning utensils and taking bath should be prohibited.
- 4) People should be made aware about water pollution and water borne diseases.

c) Noise pollution:

Another mode of pollution in this locality is noise pollution due to heavy traffic. People should be made aware of harmful effects of noise pollution. Unnecessary use of horns should be prohibited.

Conclusion:

As we all know that our environmental condition and our environment is very necessary for our healthy existence on the earth. A healthy environment depends on the good habits of human beings and the circumstances we create. Hence, it is our duty to protect our environment from pollution for a better and healthy world.

Activity - 2

select any topic of your choice and prepare a lesson plan on the lines suggested in constructivist approach.

Teacher Name: Kuydeep Saha

Title: Micro-organisms

Grade/Level: VIII

Subject: Biological Sciences

School: XYZ

Time required: 2+ hrs.

Date: 25.10.2016

Summary:

The living organisms which cannot be seen by the naked eyes are called microorganisms. They are of various types according to number of cells, size, habitat and evolution. Some of them are beneficial to humans where others are harmful.

Objectives:

- Objective of the course are:-
- i) Provide knowledge about different types of micro-organisms and their evolutionary impact.
 - ii) Provide knowledge about beneficial and harmful effects of micro-organisms.

	iii) Knowledge about different microbial diseases, symptoms and precautions. iv) Knowledge about vaccination. v) Handling microscopic organisms in laboratory.
Assessments:	i) Taking seminar on beneficial microbes. ii) Project on aids. iii) Oral assessment.
Materials supplied:	i) Diagram of different types of microbes (e.g. virus, bacteria, fungi, protozoa). ii) Chart showing different diseases in plants and animals with causative microbe. iii) Detailed note on vaccination, antigen-antibody interaction.
Procedure:	i) Identifying different types of micro-organisms from chart. ii) Observation of drop of water, curd, bread mould, orange mould under the microscope. iii) Experiment showing fermentation of dough.

Remarks:

Topic is first introduced in secondary level. There was no prior knowledge about microbes. Hence, in depth introduction with the significance of microbes in the scale of evolution was to be discussed.

Activity-3

Prepare laboratory instructional cards for any two experiments of your choice.

- ① Laboratory instruction to observe plant cells (eg. onion peel cells) under microscope:

Aim of the experiment:

To observe the plant cells (eg. onion peel cell) under a microscope.

Materials required:

onion, glass slide, cover slip, water, microscope.

Procedure:

- i) cut a slice of an onion and peel off its skin.
- ii) Take out the thin membrane present in between the two fleshy layers.
- iii) Place it on a clear glass slide.
- iv) Put a drop of water on it and place a cover slip over it.
- v) Observe the slide under microscope.
- vi) Record your observation.
- vii) Draw a diagram of what you observe under microscope and label it.

Precaution:

- i) Care must be taken while placing the cover slip, no air bubble should form.
- ii) Glass apparatus and microscope should be handled with care.

② Laboratory instruction to study the action of curd (or yeast) on the maida dough:

Aim of the experiment:

To study the action of curd (or yeast) on the maida dough.

Material Required:

Maida, powdered rice-dal mixture, curd/yeast.

Apparatus required:

A glass/stainless steel bowl.

Procedure:

- i) Take about 100 gm maida in a bowl.
- ii) Mix the maida with little warm water and about 30-40 gm of curd (or a little yeast).
- iii) Knead it to a soft dough.

- iv) Leave it at a warm place at around 33°C for about 2-3 hours.
- v) Record your observation.
- vi) Explain with reason.

Activity - 4

Prepare a herbarium based on a certain theme.

A herbarium is a collection of pressed and dried herbs placed in an enclosure. The specimen may be whole plant or a part of the plant such as leaf, twigs, inflorescence, flowers, stem etc. The main objective of having herbarium is to maintain a record of the specimens which are often used as reference materials for describing plant taxa. They are usually preserved in dried form and mounted on a specific sheet of paper called as herbarium sheets.

Preparation of Herbarium:

- 1) Plant materials are collected based on various criteria such as habitat, taxonomic significance, economical or medicinal significance.
- 2) The collected plant materials (from the field) are spread on sheets of newsprint or rough book and dried. Usually they are dried in plant press between blotters or absorbent papers.

3) Little amount of boric powder may be sprinkled to avoid insects or growth of moulds.

4) Sheets are kept under heavy press for drying. The sheets can be changed every day till the specimen completely dried.

Mounting:

The dried specimen is then transferred to a mounting sheet. Herbarium sheets are available in the market or else a standard sheet of $11\frac{1}{2} \times 26\frac{1}{2}$ inches which is thick could serve the purpose. The specimen is placed on the sheet and fixed with a tape.

Labeling:

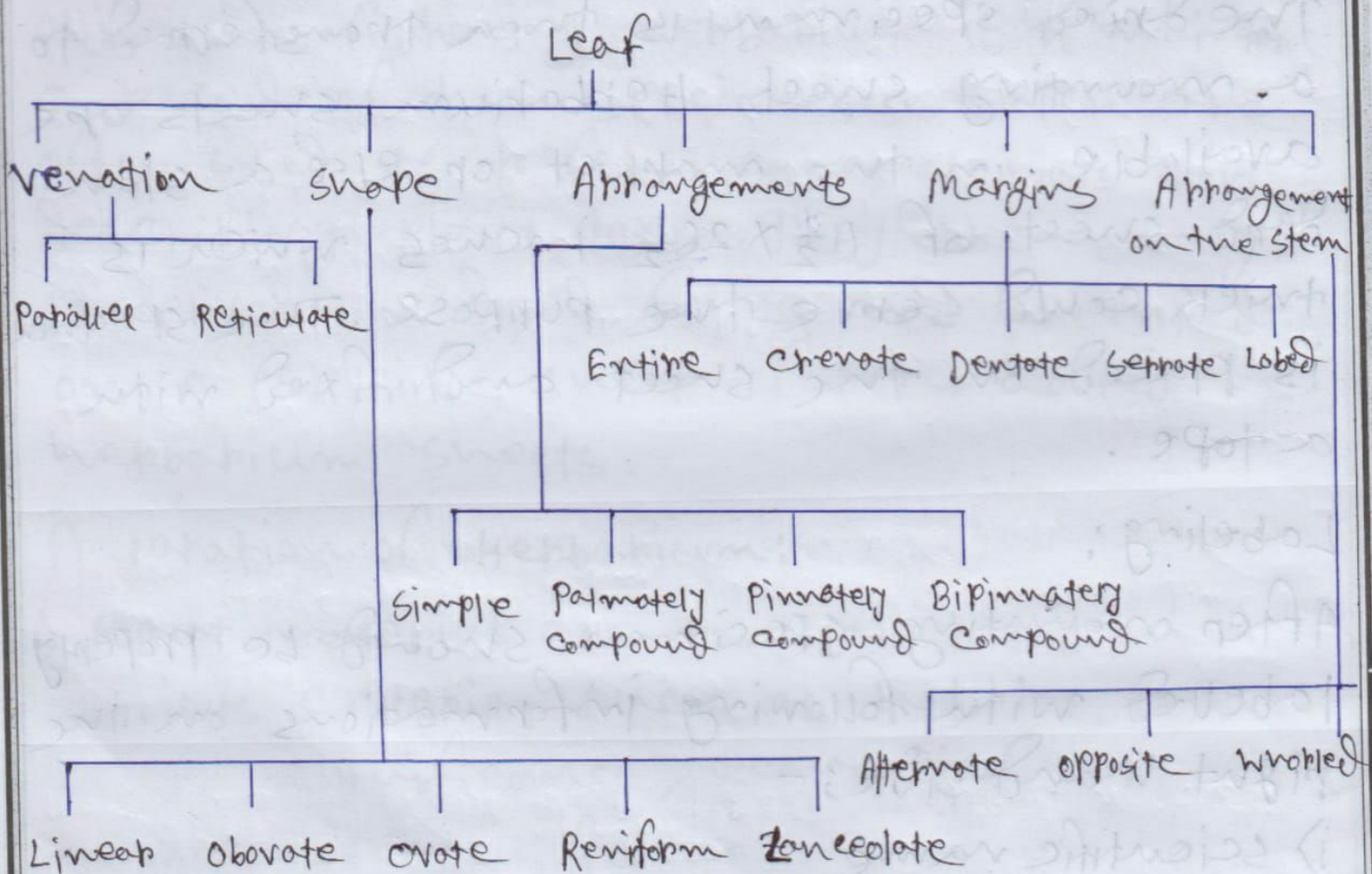
After mounting specimen should be properly labelled with following informations on the right hand side:-

- i) scientific name
- ii) family
- iii) common name
- iv) place of collection and locality
- v) name of the collector
- vi) Date of collection

Storing:

The herbarium must be kept in a big wooden box or cardboard. Naphthalene balls can be used to avoid mites and fungal growth.

Theme of the herbarium: Different types of leaves



Activity-5

Analyze recent public examination X Class Biological science question paper and compare with the pre-final question paper and record your observations.

Analysis of question paper is based on the distribution of weightage given to the following aspects :-

- i) Objectives
- ii) Content
- iii) Form of questions
- iv) Difficulty level

Weightage to the objectives :

Weightage should be given to the various objectives of teaching (eg. Knowledge, understanding, application, Skill) according to the emphasis given during the instruction.

Weightage to the content :

Weightage should be given to different sub-units based on their relevance to total subject matter and time devoted.

weightage to the format of questions:

In achievement test usually the three forms of questions viz. Easy, short answer (SA) type and objective type are given.

weightage to the difficulty level:

To get optimum discrimination through a test, most of its questions should be of average difficulty level. A few easy questions to motivate the below average students and few difficult ones to challenge the gifted should be incorporated in the question paper.

Sl. NO.	Question Number	Objective	Specification	Form of question	Difficulty level	Sub-unit	Time	Marks
1.	2	Understanding	Recall	Easy objective	Easy	Reproduction	1/2 min	1
2.	5	Knowledge	Recall	SA	Easy	conservation	1/2 min	2
3.	11	Application	Recognise	SA	Average	Reproduction	3 min	3
4.	13	Explanation	Recall	SA	Average	Reproduction	3 min	3
5.	14	Application	Recognise	SA	Average	Heridity	3 min	3

Sl. No.	Question number	Objective	Specification	Form of question	Difficulty level	Sub-unit	Time	Marks
6.	15	Justify	Recall	SA	Difficult	Conservation	3 min	3
7.	18	Explanation	Value	Essay	Difficult	Reproduction	10 min	5
8.	20	Knowledge	Recall	Essay	Average	Evolution	10 min	5
9.	21	Knowledge	Recall	objective	Easy	Heredity	1/2 min	1
10.	28	Application	Recognise	objective	Easy	Heredity	1/2 min	1
11.	29	Application	Recognise	Essay	Average	Evolution	10 min	5
12.	35	SKU	Recognise	SA	Easy	Reproduction	1 1/2 min	2

The above mentioned table showing analysis of class X question papers of board examination of 2016 of Biological sciences.

Analysis of X class question paper: pre-board examination 2015 (Biological Science)

Sl. No.	Question Number	Objective	specification	Form of question	Difficulty level	Sub-unit	Time	Marks
1.	1	Knowledge	Recall	Easy	Easy	Heredity	1/2 min	1
2.	3	Knowledge	Recall	Easy	Easy	Heredity	1/2 min	1
3.	7	Knowledge	Recall	SA	Average	Evolution	1 1/2 min	2
4.	10	Skill	Recognise	SA	Average	Reproduction	3 min	3
5.	11	Application	Recognise	SA	Average	Conservation	3 min	3
6.	12	Knowledge	Recall	SA	Average	Evolution	3 min	3
7.	19	Knowledge	Recall	Essay	Average	Heredity	10 min	5
8.	23	Application	Recognise	Essay	Difficult	Heredity	10 min	5
9.	29	Knowledge	Recall	objective	Easy	Reproduction	1/2 min	1
10.	32	Skill	Recognise	SA	Difficult	Conservation	1 1/2 min	2
11.	34	Skill	Recognise	SA	Average	Reproduction	1 1/2 min	2