

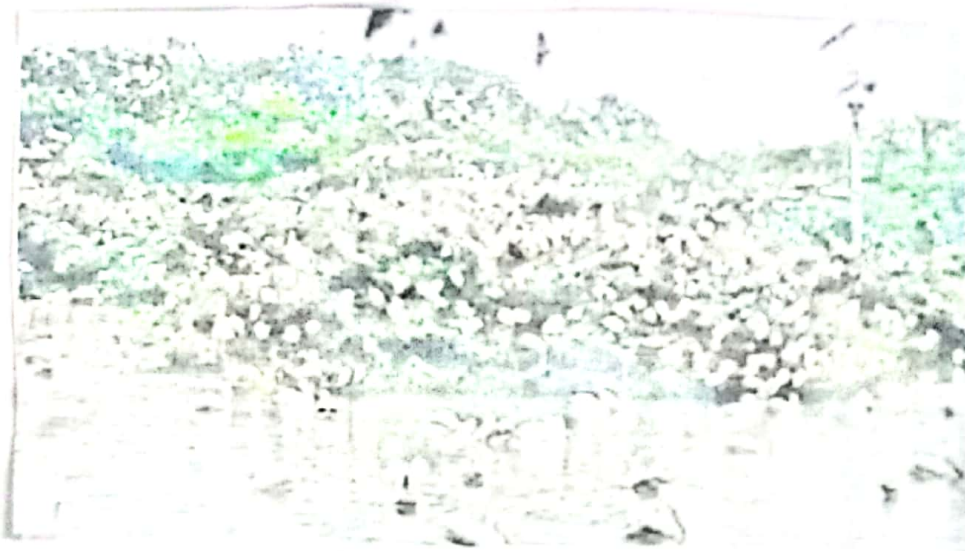
Pedagogy - I  
Biological Sciences

S.No	Name of the activity	Page No
1.	Visit any Zoological park/Botanical Garden/ Agro based Industry / food park / institution of scientific interest or science and Technological museum in your vicinity and report.	
2.	Identify and write the objectives and specifications under the three domains on any topic of your choice.	
3.	Sketch the Life history and write his/her contributions of any biologist.	
4.	Name any common branch of both botany and zoology and explain how you integrate the pedagogy in dealing with the content.	

## Activity-1

### Visit To Bird Sanctuary

As a Part of Pedagogy of Biological science activity, we visited Birds Protection Center, Uppalapadu village, Kakani (mandal), Guntur (district).



## Information about the Birds Protection Center

Many varieties of Birds have been visiting the Uppalapadu since 50 years. The village has a large water body embracing about 30 acres. Out of these 30 acres now, the birds protection area is confined to only 9 acres of water body set a part by the village for the exclusive use of visiting birds. There are 14 mounds formed in this water body, which harbour the birds. The extent of the mounds is around 2 acres. The Forest Department took over the tank in 1997. Then onwards many works for improvement of the habitat have been taken up. The main vegetation on the mounds is Prosopis Juliflora. These trees are getting deteriorated because of the continuous use by the birds. For improving the nesting habitats, first 2 artificial trees were introduced in the tank and observed that the birds accepted them positively for nesting. Subsequently 2 more improved artificial trees have been introduced, which are also very well being used by the birds.

## Introduction:

Uppalapadu bird Resort is the one of the important site in India for the visiting birds every year. Uppalapadu bird habitat is a village pond where birds are taking refuge from Pre-independence period. The villagers are like the birds and protecting the birds from poaching. Villagers are allotted a portion of their ponds for birds. The Center encompasses an area of 9 acres out of which about 7 acres a tank and 2 acres is tank bund extra land.

## Location:

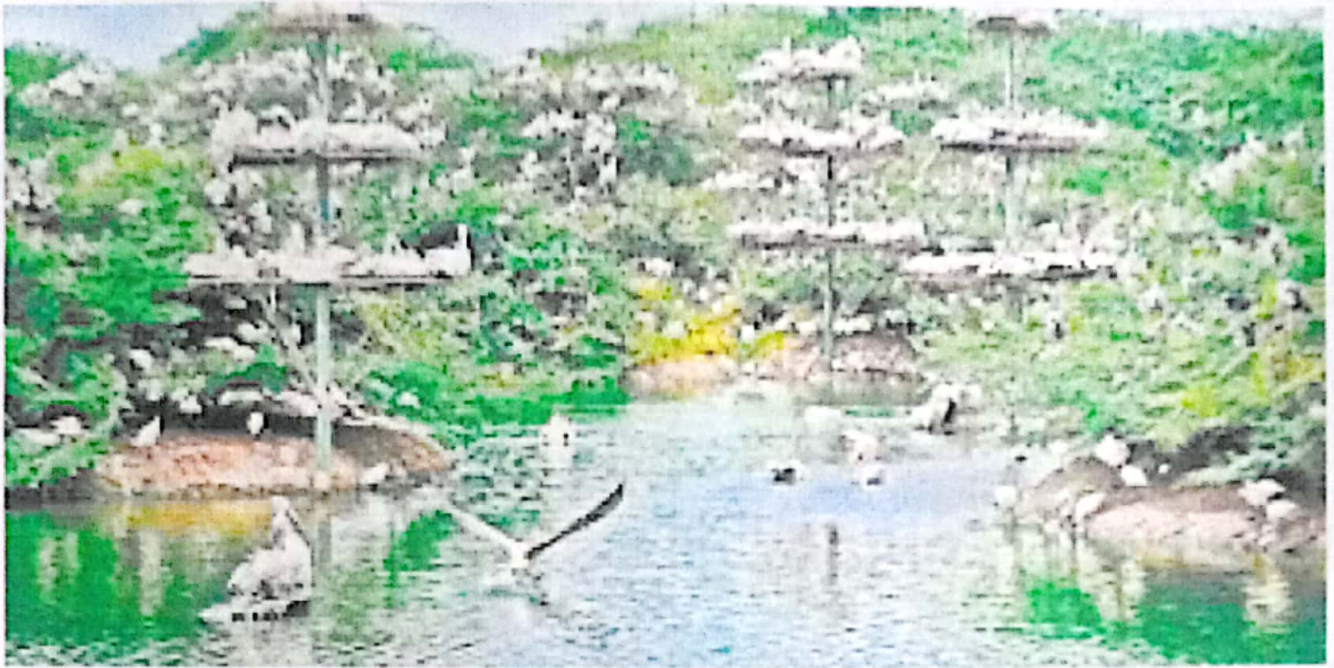
A village where birds reams freely Uppalapadu village, pedakakani mandal, Guntur district, Andhra Pradesh, India.

\* Latitude :  $N16^{\circ} 18' 24.5''$

\* Longitude :  $E80^{\circ} 30' 46''$

S.No	Name of the Birds	Nesting seasons in Uppalapadu
1.	Spot Billed Pelican	October to February
2.	Painted stork	December to March
3.	Black-Crowned Night heron	February to March & May (or) July
4.	Asian Open Bill stork	June to October
5.	Black headed Ibis	January and August to October
6.	Little Cormorant	August to October
7.	Eastern great egret	March to May
8.	Bronze-winged Jacana	May to June
9.	Little egret	February to April
10.	Great egret	March to April





## Activity-2

Identify and Write the objectives and Specifications under the three domains on any topic of your choice.

Content	Objective Specification.
<u>I Cognitive Domain</u>	
<p>i) There are so many plants and animals around us we know very little about them. Most of them belong to a world not visible to the unaided eye. as you have already studied in the Chapter on "microbial world".</p>	<p>1) <u>Knowledge</u>: <u>Recognise</u>: The children are able to recognise the plants and animals present in the world.</p>
<p>ii) Studying about diversity and it would be a chaotic and difficult task moreover describing and naming each organism individually without knowing the organism that might be sharing common.</p>	<p>2) <u>Understand</u>: In this the children are able to understand about the living things in this world, They have to separate them in a meaningful way.</p>

iii) Thus people who have tried to diverse organisms in nature, have tried to make groups of them on the basis of differences and similarities found among them. This helped to identify largely varied and closely related groups of organisms.

3) In this children are able to understand the diverse organisms in nature they have to separate them into similarities found in them.

## II Affective Domain

iv) In this lesson we will try to study the diversity present among several living organisms classify and appreciate nature's miracle.

Appreciation:

\* Significance: Then in this the children are able to recognise the plants and animals by separating them in a similarities (similar qualities).

## III Psychomotor Domain

v) Observation of Plants:

Collect leaves from different plants and observe them carefully. could you find any 2 leaves (with) which are

1) Children are able to collect the different types of leaves.

Similar with respect to any of the characters, size, shape, colour and differences observed in the sample of leaves collected by you.

vi) Reporting Skill:

After the observation of collected items we can report that in tabular form.

2) children are able to observe the different leaves.

The children are able to tabulate to find the similar characteristic of two leaves of size and shape and colour as mentioned in the table.

## Activity-3

Sketch the Life history and Write his/her Contributions of any one Biologist.

\* Life History and Contribution of "Aristotle"

### About Aristotle:

The Greek philosopher Aristotle (384-322 B.C.) made significant and lasting contributions to nearly every aspect of human knowledge, from logic to biology to ethics and aesthetics. Though overshadowed in classical times by the work of his teacher Plato, from late antiquity through the Enlightenment, Aristotle's surviving writings were incredibly influential. In Arabic philosophy, he was known simply as "The First Teacher" in the West, he was "The Philosopher".

### Aristotle's Early Life:

Aristotle was born in 384 B.C in Stagira in northern Greece. Both of his parents were members of traditional medical families, and his father, Nicomachus, served as court physician to King Amyntus III of Macedonia.

His parents died while he was young, and he was likely raised at his family's home in Stagira. At age 17 he was sent to Athens to enroll in Plato's Academy. He spent 20 years as a student and teacher at the school, emerging with both a great respect and a good deal of criticism for his teacher's theories. Plato's own later writings, in which he softened some earlier positions, likely bear the mark of repeated discussions with his most gifted student.

When Plato died in 347, control of the Academy passed to his nephew Speusippus. Aristotle left Athens soon after, though it is not clear whether frustrations at the Academy or political difficulties due to his family's Macedonian connections hastened his exit. He spent five years on the coast of Asia Minor as a guest of former students at Assos and Lesbos. It was here that he undertook his pioneering research into marine biology and married his wife Pythias, with whom he had his only daughter, also named Pythias.

In 342 Aristotle was summoned to Macedonia by King Philip II to tutor his son, the future Alexander the Great - a meeting of great historical figures that, in the words of one modern commentator, "made remarkably little impact on either of them."

## Aristotle and the Lyceum

Aristotle returned to Athens in 335 BC. As an alien, he couldn't own property, so he rented space in the Lyceum, a former wrestling school outside the city. Like Plato's Academy, the Lyceum attracted students from throughout the Greek world and developed a curriculum centered on its founder's teachings. In accordance with Aristotle's principle of surveying the writings of others as part of the philosophical process, the Lyceum assembled a collection of manuscripts that comprised one of the world's first great libraries.

## Aristotle's Works

It was at the Lyceum that Aristotle probably composed most of his approximately 200 works, of which only 31 survive. In style, his known works are dense and almost jumbled, suggesting that they were lecture notes for internal use at his school. The surviving works of Aristotle are grouped into four categories.

The "Organon" is a set of writings that provide a logical toolkit for use in any philosophical or scientific investigation. Next come Aristotle's theoretical works, most famously his treatises on animals, cosmology, the physics" about

the nature of mind and matter, change and the "Metaphysics" (a quasi-theological investigation of existence itself).

Third are Aristotle's so-called practical works, notably the "Nicomachean Ethics" and "Politics"; both deep investigations into the nature of human flourishing on the individual, familial and societal levels. Finally, his "Rhetoric" and "Poetics" examine the finished products of human productivity, including what makes for a convincing argument and how a well-wrought tragedy can instill cathartic fear and pity.

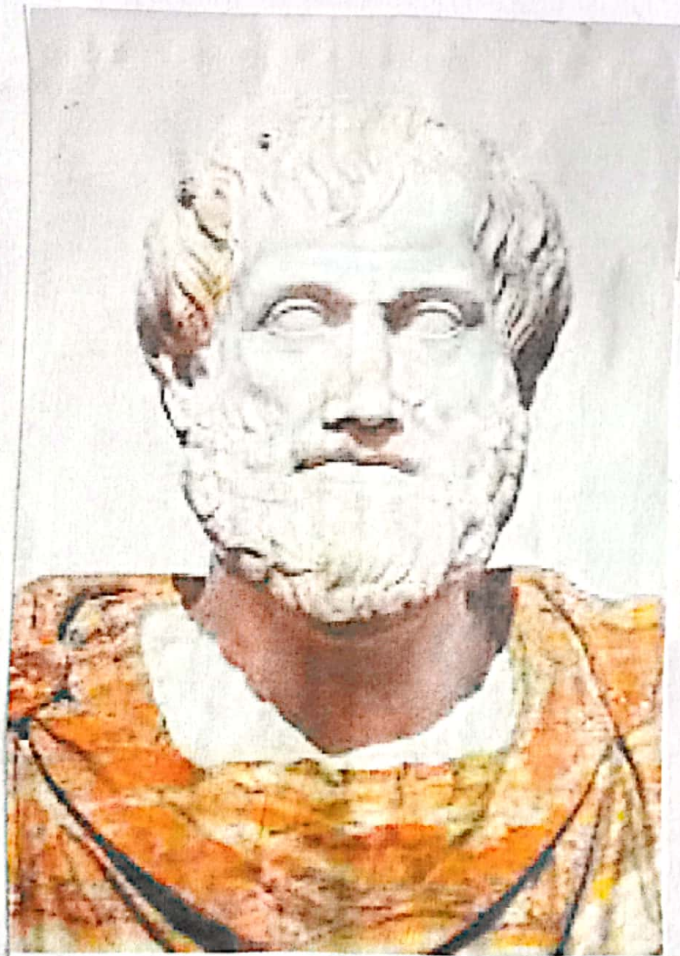
### Aristotle's Death and Legacy

After the death of Alexander the Great in 323 B.C. anti-Macedonian sentiment again forced Aristotle to flee Athens. He died a little north of the city in 322, of a digestive complaint. He asked to be buried next to his wife, who had died some years before.

Aristotle's favoured students took over the Lyceum, but within a few decades the school's influence had faded in comparison to the rival Academy. For several generations Aristotle's works were all but forgotten. This historian Strabo says they were stored for centuries in a moldy cellar in Asia Minor before their rediscovery in the first

Century B.C, though it is unlikely that these were the only copies.

In 30 B.C Andronicus of Rhodes grouped and edited Aristotle's remaining works in what became the basis for all later editions. After the fall of Rome, Aristotle was still read in Byzantium and became well-known in the Islamic world, where thinkers like Avicenna (976-1037), Averroes (1126-1204) and the Jewish scholar Maimonides (1134-1204) revitalized Aristotle's logical and scientific precepts.



Aristotle

## Activity-4

Name any Common branch of both Botany and Zoology and Explain how you integrate the pedagogy in dealing with the content.

\* Name of the Common branch of both botany and Zoology : Ecology [Ecosystem]

### Introduction:

Ecosystem has both Botany and Zoology in order to explain this topic, we may integrate different teaching methods based on the Nature of the topic Ecosystem.

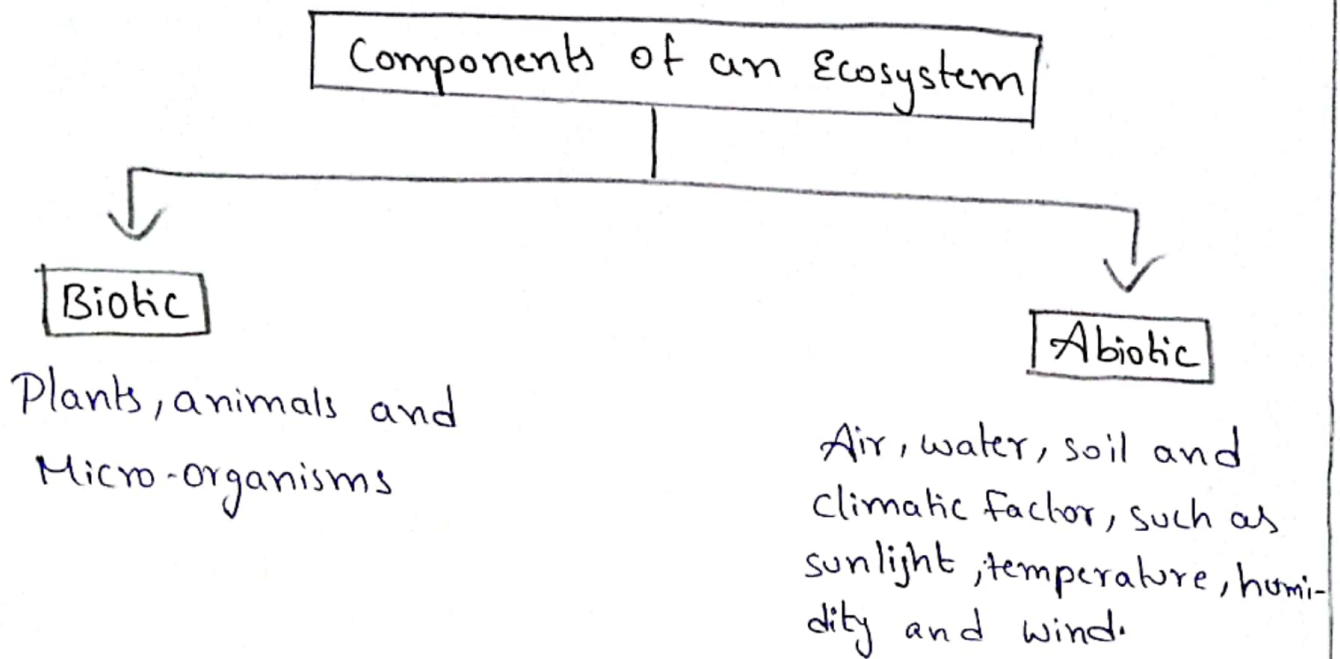
### Ecosystem and its Compounds:

All living organisms (plants, animals and microorganisms) needs food and other materials from their surroundings. The life of an organism is thus, affected by the living and non-living around it.

All living organisms in a given area that interact with each other, as well as with the non-living components of the environment (such as Air, water, soil, sunlight and soon) constitute an Ecosystem.

There is a continuous exchange of energy and matter the living and non-living components of an Ecosystem.

As Ecosystem has two main components, They are Biotic components and a biotic components.



### Biotic Components :

All living organisms in an ecosystem, namely plants, animals and microorganisms from its biotic components. Depending on how they are in their food, living organisms can be divided into three groups, namely Producers, Consumers and Decomposers.

I producers

II Consumers (or) Heterotrops

- ① Herbivours - Primary consumers
- ② Carnivours - secondary consumers
- ③ Omnivours - scavengers.

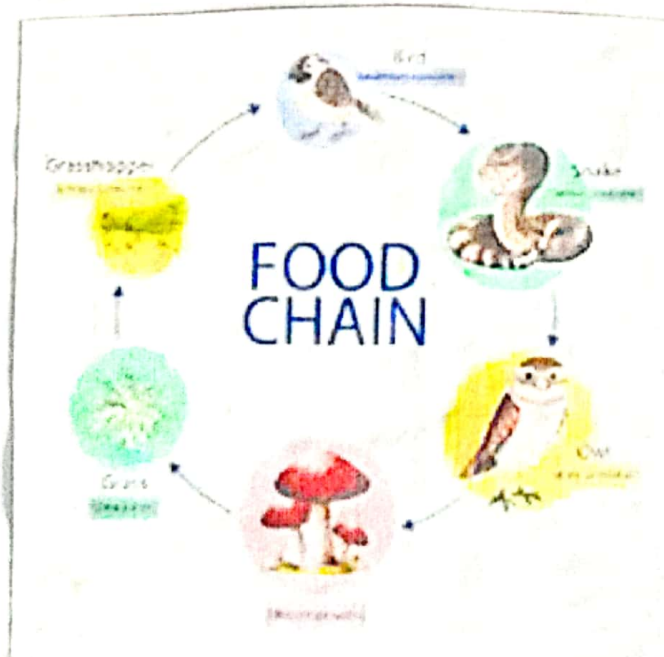
III Decomposers - Nature's scavengers.

To teach Ecosystem and its Components to Lecture demonstration method.

### \* Interaction within Biotic Components

Biotic Components are linked to each other. Primarily by food from food chains and food webs.

Food chains: A series of organisms that are linked to each other through a process of eating and being eaten from a food chain. For example in a typical food chain, the plants (producers) are eaten by a rabbit (primary consumers) and the rabbit is eaten by a snake (secondary consumers), which is then eaten by a Eagle (tertiary consumer). When eagle dies, its body is decomposed by Microorganisms such as fungi and bacteria into simple nutrients, which are returned to the soil reuse by plants. Thus a chain of eating and being eaten is formed.



Food chain

\* Some examples of food chains are as follows.

1) Green plants → Deer → Lion  
(Producers) (Herbivours) (Carnivours)

This food chain is formed in a forest ecosystem.

2) Grass → Insect → Frog → Eagle  
(Producers) (Herbivours) (Carnivours) (Carnivours)

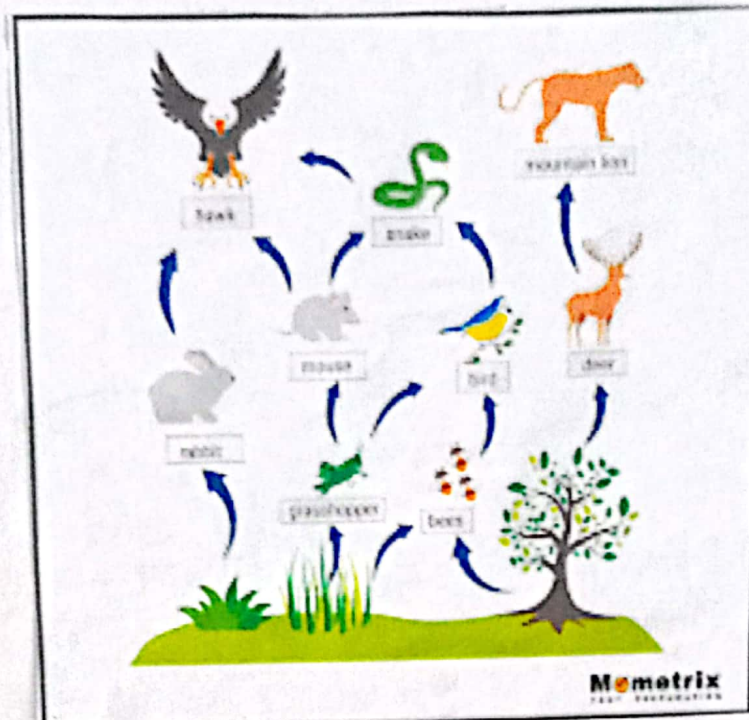
This food chain is found in Grassland Ecosystem.

To teach the concept of food chain we can use project method. Students are given to observe the food habits of different plants and animals in a garden (or) Grassland (or) Forest.

### Food Web :

Most consumers have more than one source of food ; Frogs, eat caterpillars besides grasshoppers, snakes etc. Rabbits as well as lizards, mice and Rats. Rats are also eaten by hawks. Thus a plant (or) animals may be part of several food chains, several food chains are interconnected to form a food web.

To teach the concept of food web that many food chains are interconnected by giving the different examples. that a plant (or) animals may be a part of several food chains. in this lecture demonstration method can be used.



## Food Web

Conclusion: From the above explanation we can conclude that for teaching Ecosystems, we integrated the following methods.

- 1) Lecture method - Ecosystems and its components
- 2) Project method - Food chain
- 3) Lecture demonstration method - Food web.