NATURE SCIENCE INTERNSHIP PROGRAMME

ADAMYA CHETANA

BGS NATIONAL PUBLIC SCHOOL

TEAM DETAILS

NSIP MEMBERS :

STUDENTS
1. LOCHAN
2. ARYAN
3. NIDHI
4. PRANEETHA
5. TEJAS

OUR GUIDES
1. Ms. RAJSREE NAIR
2. Ms. SMITHA
3. Ms. DEBJANI
4. Ms. MONICA
5. Ms. VIJAYA
6. SHREYA (senior)
7. SMRITI (senior)
8. NAYANA (senior)

STUDY AREA DETAILS

AREA 1 :

AREKERE LAKE

Arekere lake was originally spread over an area of approximately 37 acres, the lake is bounded on the west by Bannerghatta road, on the north by BDA Eighty Feet Road, on the east by Shantinikethan Layout and on the south by Hulimavu Main Road.
According to the BBMP , the perimeter of the lake is about three kilometers. It was possibly a manmade water reservoir created approximately 100 years ago.
The lake is under the jurisdiction of the BDA. As is the case with many other lakes in Bangalore, in the last two decades the Arekere Lake has been encroached upon by real estate developers, and the current extent of the lake according to our observation has been estimated to be only 23.2 acres .

AREA 2 :

MINI FOREST

Mini forest is in JP Nagar, 3rd phase, which is a forest in the middle of a concrete jungle. The park is well maintained and kept clean by the BBMP and also some of the locals who use the park as a nice get away from their daily activities. According to our recent observations, the park is being dumped with garbage at various places.

MAPPING OF BOTH AREAS

AREKERE LAKE

12.8830 degree N, 77.5981 degree E

MINI FOREST

12.9116 degree N, 77.5987 degree E

Birds found in AREKERE LAKE

COMMON NAME	SCIENTIFIC NAME	PICTURE	ACTIVITY	NO.
1. Red-Whiskered Bulbul	*Pycnonotus Jocosus*		PERCHING	2.
2. Black Kite	*Milvus Migrans*		FLYING	5.
3. White Browed Wagtail	*Motacilla Maderaspatensis*		FLYING	3.
4. Common Myna	*Acridotheres Tristis*		FLYING	3.

COMMON NAME	SCIENTIFIC NAME	PICTURE	ACTIVITY	NO.
5. Koel	*Eudynanys*		PERCHING	2.
6. Indian Pond Heron	*Ardeola Grayii*		FLYING AND PERCHING	3.
7. Plain Parakeet	*Brotogeris tirica*		PERCHING AND FLYING	2.
8. Black-Headed Ibis	*Threskiornis Melanocephalus*		FLYING	5.
9. Rose-Ringed Parrot	Psittacula Krameri		PERCHING	1.

COMMON NAME	SCIENTIFIC NAME	PICTURE	ACTIVITY	NO.
10. Blue Rock Pigeon	*Columba Livia*		FLYING	3.
11. Barn Swallow	*Hirundo Rustica*		FLYING	1.
12. Jungle Crow	*Corvus Macrorhynchos*		FLYING	4.
13. Purple Moor Hen	*Porphyrio Porphyrio*		WALKING	3.
14. Little Egret	*Egretta Garzetta*		WALKING	3.

COMMON NAME	SCIENTIFIC NAME	PICTURE	ACTIVITY	NO.
15. Jungle Myna	*Acridotheres Fuscus*		PERCHING	3.
16. Red - Wattled Lapwing	*Vanellus Indicus*		FLYING	2.
17. Baya Weaver	*Ploceus Philippinus*		FLYING	1.
18. Greater Cormorant	*Phalacrocorax Carbo*		FLYING	1.
19. Brahminy Kite	*Haliastur Indus*		FLYING	1.

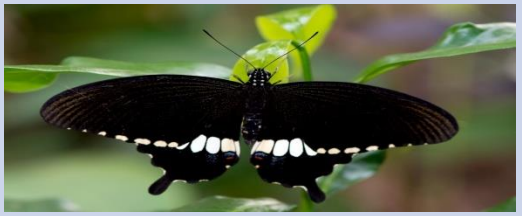
COMMON NAME	SCIENTIFIC NAME	PICTURE	ACTIVITY	NO.
20. Scaly-Breasted Munia	*Lonchura Punctulata*		FLYING	7.
21. Indian Silver Bill Munia	*Euodice Malabarica*		FLYING	1.
22. Spotted Dove	*Spilopelia Chinensis*		FLYING	2.
23. Ashy Prinia	*Prinia Socialis*		FLYING	1.
24. Purple Rumped Sunbird	*Leptocoma zeylonica*		PERHING AND FLYING	2.

COMMON NAME	SCIENTIFIC NAME	PICTURE	ACTIVITY	NO.
25. Asian Palm Swift	*Cypsiurus balasiensis*		FLYING	3.
26. Common Coot	*Fulica atra*		WALKING	4.
27. Bronze-Winged Jacana	*Metopidius indicus*		WALKING	3.
28. Tricoloured Munia	*Lonchura malacca*		FLYING	2.
29.Kingfisher	*Alcedinidae*		FLYING	1.

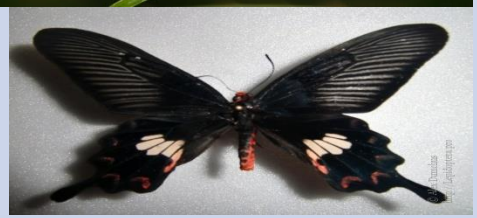
COMMON NAME	SCIENTIFIC NAME	PICTURE	ACTIVITY	NO.
30. Plain Prinia	*Prinia inornata*		FLYING	2.
31. Shikra	*Accipiter badius*		PERCHING	1.
32. House Crow	*Corvus splendens*		FLYING	5.
33. Pied Bushchat	*Saxicola caprata*		FLYING	1
34. Greater Coucal	*Centropus sinensis*		FLYING	1.

COMMON NAME	SCIENTIFIC NAME	PICTURE	ACTIVITY	NO.
35. White-Cheeked Barbet	*Psilopogon viridis*		FLYING	1.

BUTTERFLIES FOUND IN THE AREKERE LAKE

COMMON NAME	SCIENTIFIC NAME	PICTURE
1. Common Mormon Male	*Papilio polytes*	
2. Blue Mormon	*Papilio polymnestor*	
3. Common Indian Crow	*Euploea core*	
4. Tailed Jay	*Graphium agamemnon*	

COMMON NAME	SCIENTIFIC NAME	PICTURE
5. Common Grass Yellow	*Eurema hecabe*	
6. Angled Castor	*Ariadne ariadne*	
7. Plain Tiger	*Danaus chrysippus*	
8. Common Gull	*Cepora nerissa*	
9. Mottled Emigrant	*Catopsilia pyranthe*	

COMMON NAME	SCIENTIFIC NAME	PICTURE
10. Red Pierrot	*Talicada nyseus*	
11. Common Emigrant	*Catopsilia pomona*	
12. Common Castor	*Ariadne merione*	
13. Plains Cupid	*Chilades pandava*	
14. Common rose	*Pachliopta aristolochiae*	

PLANTS FOUND IN AREKERE LAKE

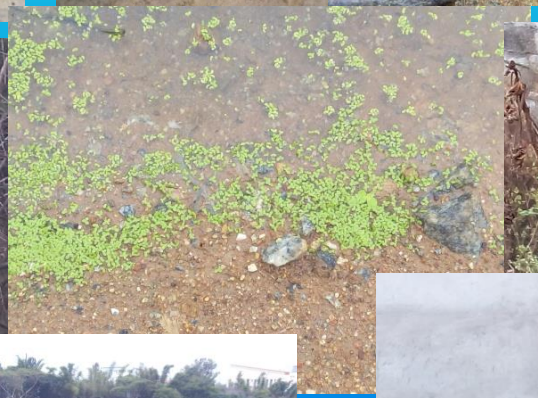
COMMON NAME	SCIENTIFIC NAME	PICTURE
1. Cattail	*Typha*	
2. Sessile joyweed	*Alternanthera sessilis*	
3. Castor	*Ricinus communis*	

COMMON NAME	SCIENTIFIC NAME	PICTURE
4. Lantana camara/ Big sage	*Lantana camara*	
5. Bryophyllum	*Bryophyllum*	
6. Lemna or Duckweed	*Lemnoideae*	
7. Ipomoea	*Ipomoea*	
8.Bamboo (grass)	*Bambusooideae*	

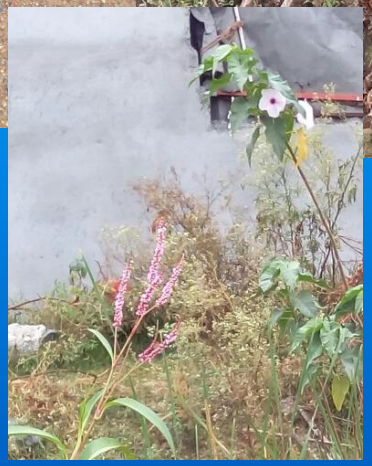
PICTURES TAKEN IN MINIFOREST AND AREKERE LAKE









SOIL ANALYSIS (COMPLETED)

1. PHYSICAL PROPERTIES

COLOUR :

The colour of the soil can either be black, red or white . Depending on the colour of the soil, we need to classify our soil sampl

TEXTURE :

Based on the soil particles' size, soils can either be sandy, clayey or silt.

Sandy soil particle- 2mm to 0.475mm

Silt soil particle- 0.002mm to 0.075mm

Clayey soil particle- less than 0.002mm

Method – take the soil sample and and put it in a beaker of water, mix well and allow them to settle down. Particles that settle within a minute are sand particles, particles that settle down within 2-3 minutes are silt particles and the particles that are suspended in the water even after 3 minutes are the clay particles.

MOISTURE CONTENT :

Method –

1. Crush the big/clumped particles and sieve them.
2. Calculate the weight of the soil samples with the petridish.
3. Then, heat the soil samples in an oven for a very long time so as to diminish all the moisture present in it.
4. Now, weigh the soil samples again. Subtract the new weight from the initial weight.
5. You will get the moisture content of the soil.

WATER HOLDING CAPACITY :

Method-

1. Take 10gm of soil and 10ml of water.
2. Take a funnel with a filter paper inside and place it in a measuring cylinder.
3. Put the soil sample in and pour water inside it.
4. After a while, record the quantity of water that is present inside the measuring cylinder.
5. Subtract this reading(in ml) from 10ml (initial reading)
6. You will get the water absorbed by the soil i.e. water holding capacity of the soil.

2. CHEMICAL PROPERTIES

pH:

Method –

1. Take a mixture of 25 gm soil and 45ml of water
2. Shake the sample well and allow it to settle.
3. Dip the pH paper or litmus paper into it.The reading below 7 is acidic and above is basic.

3. BIOLOGICAL PROPERTIES

ORGANIC MATTER :

Method-

1. Mix the soil sample in water.
2. Some particles would either be suspended in water or settled at the bottom.
3. But the portion that floats on water is the organic matter present in it.

TESTS TO BE DONE ----

1) FIELD DENSITY
2) BULK DENSITY
3) POROSITY
4) MEASUREMENT OF SOILS, METALS, AND NUTRIENTS

SOIL ANALYSIS IMAGES

WATER ANALYSIS(completed)

1. **WATER TEMPERATURE :**

   Check the temperature of the water sample on the spot by dipping it into the water contained In the BOD bottle.

2. **pH:**

   dip the pH paper into the water sample contained in the clean container. Then, try to relate the colour you have got with the different shades of the colour chart.

3. **DISSOLVED OXYGEN (WINKLER'S METHOD) :**

   Method-

- The sample is collected in a BOD bottle.
- Add 1ml of manganese sulphate and 1ml of potassium iodide into it and close the lid.
- Shake it well and allow the precipitate to settle down

- Then add 1ml of concentrated sulphuric acid. Shake it well until all the precipitate dissolves
- 25ml of the sample needs to be measured and put into a conical flask.
- Add the starch indicator into it.
- Titrate it against sodium thiosulphate.
- Record the reading and substitute the values into the formula to find the dissolved oxygen.

TESTS REMAINING :

1. SOLIDS
   - TOTAL SOLIDS
   - TOTAL DISSOLVED SOLIDS
2. ALKALINITY
3. TOTAL HARDNESS
4. CALCIUM HARDNESS
5. MAGNESIUM HARDNESS
6. CHLORIDES
7. PLANKTON ANALYSIS

ONGOING :

- CARBON FOOTPRINT
- FOOD MILE
- STUDY OF TREES AND PLANTS
- STUDY OF BIRDS
- STUDY OF BUTTERFLIES

TO BE DONE :

- STUDY OF TEXTILES

THANK YOU