

VIDYANIKETAN PUBLIC SCHOOL, ULLAL. BANGALORE

NATURE SCIENCE INTERNSHIP

PROGRAMME MEETING-2

DATE: 28th October, 2017.

STUDENTS:

AQUATIC:

1. AKSHAY
2. LOKAVEER
3. PRATHIKSHA
4. PRITHIVI
5. SPANDANA

TERRESTRIAL:

1. ADITYA
2. CHINMAI
3. SHAMANTH
4. SRINIVASA

GUIDE TEACHERS : MRS. RUKSANA AND
MRS. PADMAJA.

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STUDY AREA

- × Terrestrial Group
- × VIDYANIKETAN PUBLIC SCHOOL GARDEN.

Aquatic Group
Ullal Lake

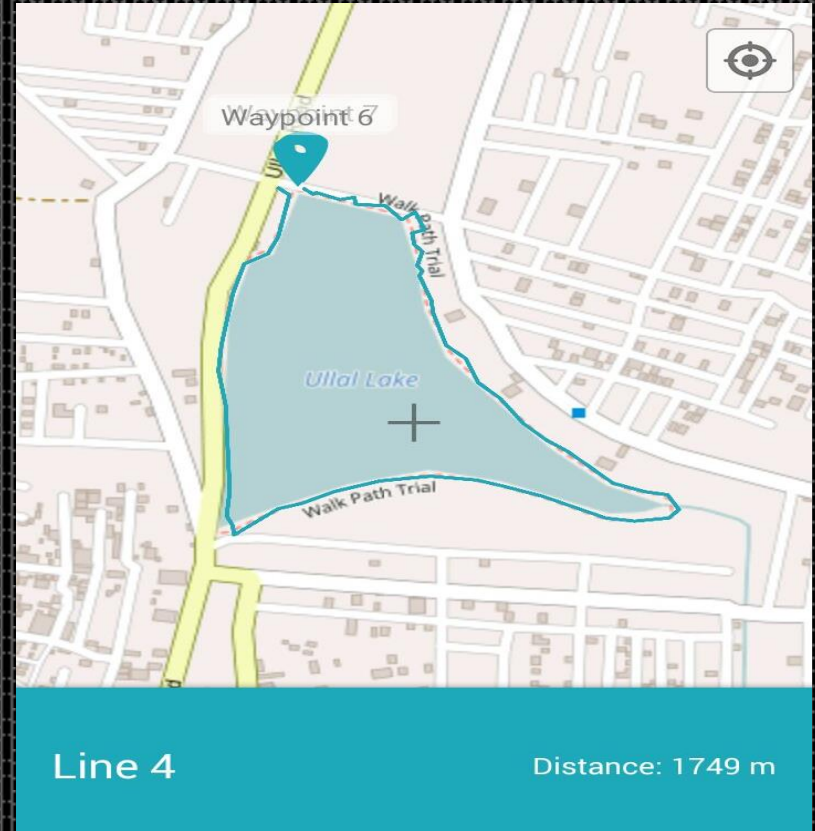


MAPPING



Perimeter : 0.85 km

Area : 2952 km sq



TREE STUDY

AUGUST 2017

1) Chickoo/sapota

- a) Girth- 1.05 m (at the base, then branches off)
- b) Height- 8.4 m

2) Teak

- a) Girth- 1.8 m
- b) Height- 17 m

SEPTEMBER 2017

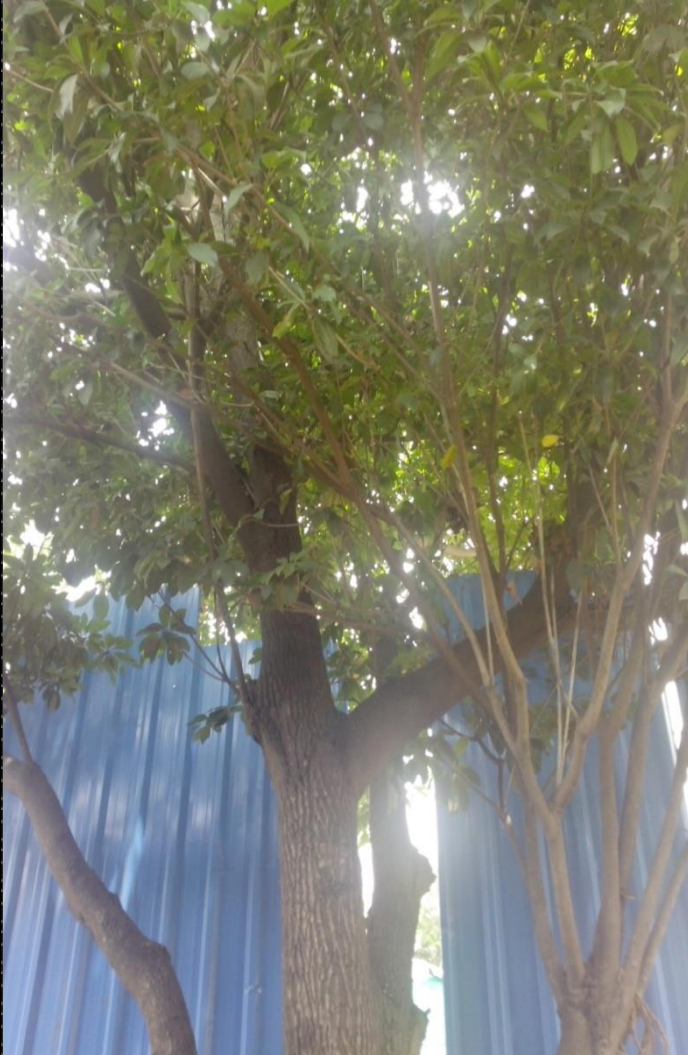
1) *Terminalia Arjuna*

- a) Girth- 1.77 m
- b) Height- 22.05 m

2) *Manilkara zapota*

- a) Girth- 40 cm
- b) Height- 6.4 m

AUGUST 2017

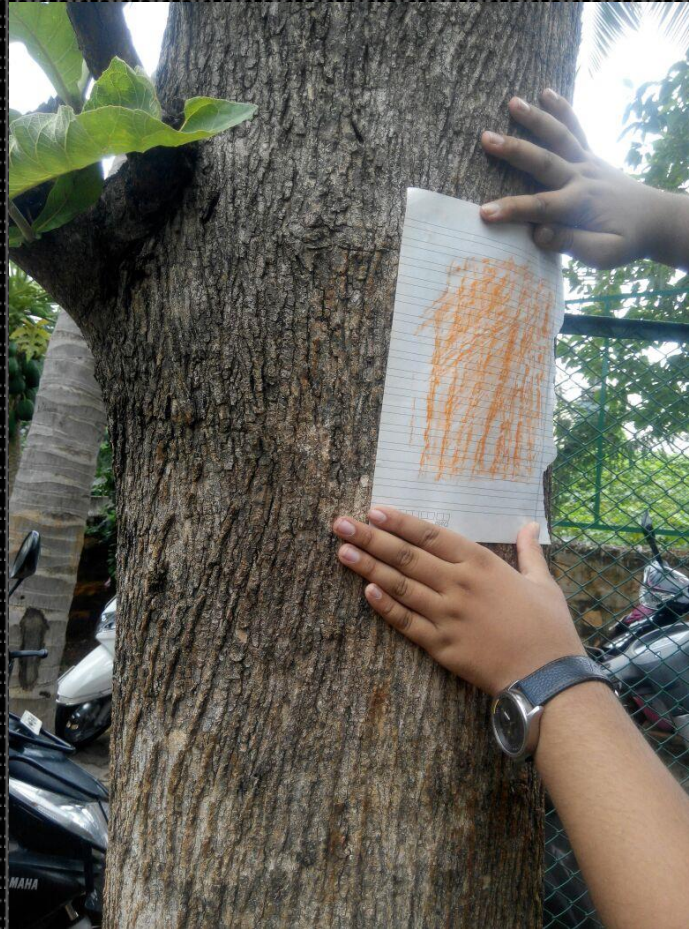


SEPTEMBER 2017



Terminalia arjuna

Pictures of the fieldwork done



OXYGEN AND CARBON SEQUEST

CARBON DIOXIDE SEQUEST

1. Terminalia arjuna Tree

Weight of the tree=74077.2kg

Dry weight of the tree=53705.97kg

Weight of carbondioxide=26852.985kg

Sequested weight of CO2 =98451kg

2. Manikara zapota Tree

Weight of the tree=13978.4kg

Dry weight of the tree=10134.34kg

Weight of CO2=5067.17kg

Sequested of CO2=18577.76kg

OXYGEN produced

1. papayatree

O2per leaf=240g

leafs present in tree=51

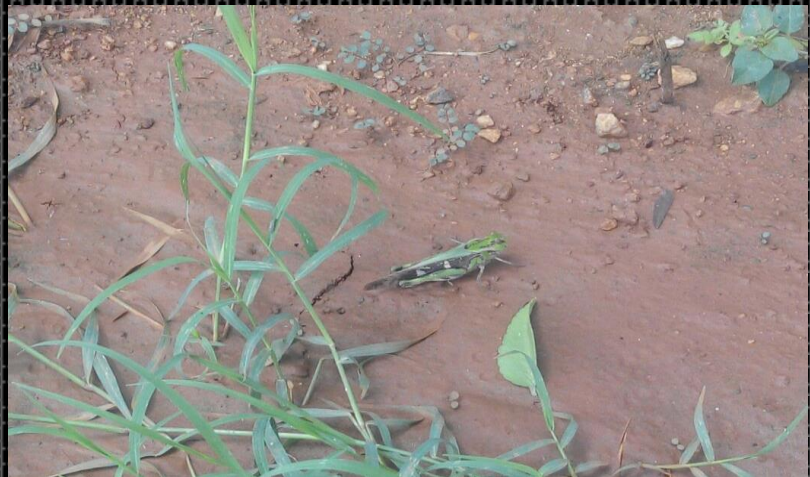
Total O2 consumption=1440g

LIST OF BUTTERFLIES AND INSECTS OBSERVED IN THE CAMPUS

- × Common Bushbrown
- × Blue pansy
- × Common Jay
- × Psyche
- × Common Grass Yellow

VARIOUS INSECTS AND OTHER LIFE FORMS IN OUR GARDEN

AUGUST 2017



SEPTEMBER 2017



LIST OF BIRDS OBSERVED IN THE CAMPUS

- × Common Myna
- × House Sparrow
- × House Crow
- × Blue Rock Pigeon
- × Dove
- × Barbet
- × Peahen
- × Aquiline
- × Red Whiskered Bulbul
- × Small Green Bee Eater
- × Brahminy Kite
- × Rose Ringed Parakeet
- × Asian Koel
- × Greater coucal

FLORA

SL. NO	LOCAL NAME	SCIENTIFIC NAME	NO.	LEAFY/FRUITY/FLOWERING
1	FORGET ME NOT BUSH	DURANTA ERECTA	2	FLOWERING
2	BURMA TEAK	TECTONA GRANDIS	35	WOODY
3	MANGO TREE	MAGNIFERA INDICA	5	FRIUTING
4	JAMAICA CHERRY	MUTINGIA CALABURA	2	FRUITING
5	ASHOKA TREE	POLVATHIA LONGIFOLIA	200	WOODY
6	CHIKOO	MANIKARA ZAPOTA	2	FRUITY
7	GUAVA	PSIDIUM GUAJAVA	2	FRUITING
8	SILVER OAK	GREVILLEA ROBUSTA	2	WOODY
9	COCONUT TREE	COCOS NUCIFERA	15	FRUITING
10	SAGO PALM	CYLAS REVOLUTA	15	FRUITY

SL. NO	LOCAL NAME	SCIENTIFIC NAME	NO.	LEAFY/FRUITY/FL OWERING
11	FLAME OF GARDEN	IXORA COCCINEA	4	Flowering
12	GOLDEN RAIN TREE	CASSIA FISTULA	8	Woody
13	RAIN TREE	SAMANEA SAMAN	4	Woody
14	PEACOCK FLOWER	CAESAPINIA	6	Flowering
15	NEEM TREE	AZADIRACHTA INDICA	2	Woody
16	WHISTLING PINE	CASUARINA EQUISETIFOLIA	2	Woody
17	CURRY TREE	MURRAYA KUENIGII	3	Woody
18	INDIAN ALMOND	TERMINALIA CATAPPA	4	Woody
19	PEEPAL TREE	FICUS RELIGIOSA	3	Woody
20	VINCA ROSEA	CATHARANTHUS RUSEUS	6	Flowering
21	CHINA ROSE	HIBISCUS ROSASINENSIS	10	Flowering
22	BIG LEAF HYDRANGEA	HYDRANGEA MACROPHYLLA	5	Flowering
23	CHAMPACA	MAGNOLIA CHAMPACA	4	flowering
24	BOTTLE BRUSH	CALLISTEMON CITRINUS	1	flowering
25	JAMUN TREE	SYZYGIVM CUMINI	4	fruity

SL. NO	LOCAL NAME	SCIENTIFIC NAME	NO.	LEAFY/FRUITY/FLOWERING
26	FOX TALL PALM	WODYETIA BIFURCATA	6	woody
27	BRAMHA KAMAL	SAUSSUREA OBVALLATA	6	flowering
28	QUEEN OF NIGHT	CESTRUM NOCTURNUM	5	flowering
29	BAMBOO PALM	CHAMAEDOREA SEIFRIZII	35	woody
30	CHRISTMAS TREE	ARAUCARIA COLUMNARIA	2	woody
31	TRAVELLER'S PALM	RAVENALA MADAGASCARIENSIS	6	woody
32	PAPAYA TREE	CARICA PAPAYA	6	fruity
33	BANANA	MUSA ACUMINATA	13	fruity
34	POMOGRANATE	PUNICA GRANATUM	9	fruity
35	ARJUNA(THORE MATTI)	TERMINALIA ARJUNA	4	woody
36	SILVER WOOD	LEUCADENDRON ARGENTUM	4	woody
37	HONGE	PONGAMIA PINNATA	30	woody
38	AMLA	PHYLLANTHUS EMBLICA	3	fruity
39	WOOD APPLE(BILVA)	AEGLE MARMELLOS	3	fruity
40	JACK FRUIT	ARTOCARPUS HETEROPHYLLUS	5	fruity

INLET



MAIN BODY



OUTLET

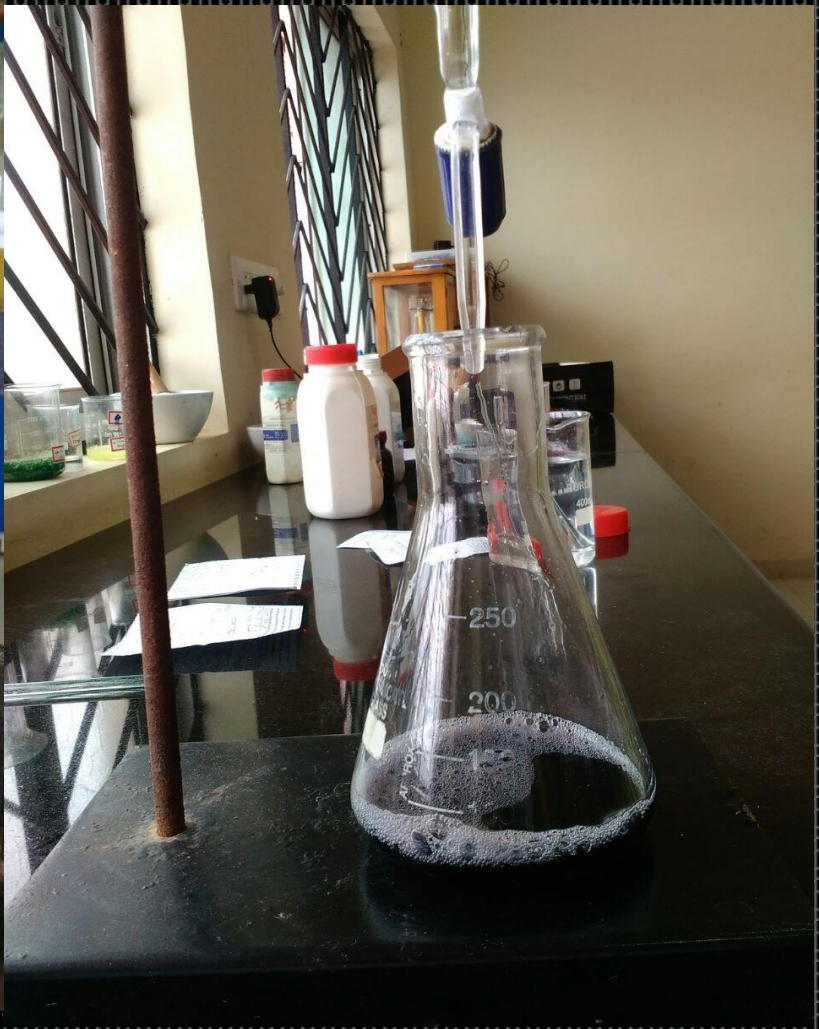
WATER BODY. AND WATER QUALITY ANALYSIS

SITE SELECTION IN WATER BODY

- × CENTER
- × OUTLET

TESTS CONDUCTED





Water Testing

Site selected : Outlet and Centre

Type of sampling : Grab sampling

Date of sampling : 14th October 2017

Time of sampling : 10:15 AM

Temperature of water in
the lake :

24° C

Sampling containers : Glass Bottles

Colour : Greenish

Test	Centre of lake	Outlet of Lake
PH	7.8	7.5
Temperature	28°	28°
Total Solids	0.13grams	0.12grams
Dissolved Oxygen	2.11mg/L	8.13mg/L
P Alkalinity	0	0
T Alkalinity	2500	2500
Total Hardness	332	336
Calcium Hardness	320.64	322.7
Magnesium Hardness	11.36	13.3
Chlorides	Negative	Negative

Microbial Analysis



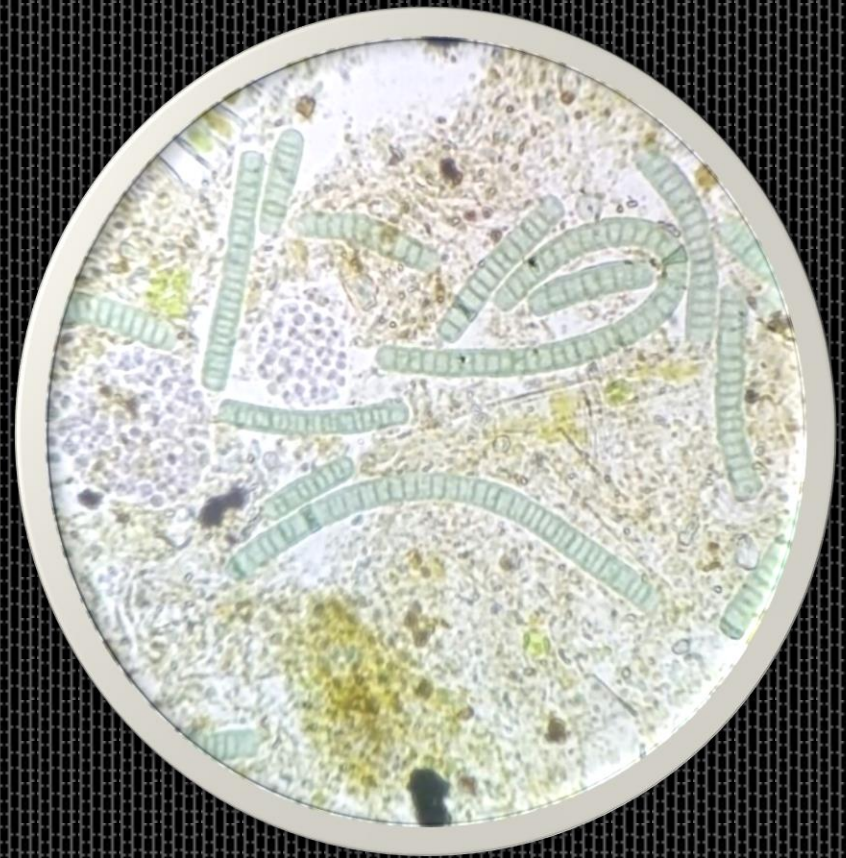
Diatom



coelastrum



Scenedesmus



Oscillatorial
filaments in
centre of the
pond

FOOD MILE –INTERVIEW OF GROCER

Location –Shri Shakthi Stores
ViJaynagar , Bengaluru

1)Since how many years are you selling groceries ?

Grocer: We are selling groceries since four years

2)What kind of groceries do you sell ?

Grocer : We sell different pulses and cereals and oils , etc..

3)Where do you get the groceries from ?

Grocer : The groceries are bought by dealers , directly from the farmers and transport it to Bengaluru .We purchase our goods from Yashwanthpur market.

4)Where are the groceries grown ?

Grocer : Rice is usually grown and brought from outskirts and rural regions of bangalore, bellary .

The pulses and wheat are from northern India . Wheat is from Punjab.

5) How are the groceries got? Which vehicle is used and how much does it cost ?

Grocer : The groceries are brought from different regions to the market place by lorries . The cost of transport differs from product to product, and is calculated per kg .

6) How has the price changed over the years ?

Grocer : When I was very young , rice was available at Rs 12/kg . The current price is Rs 60/kg . The price of rice is increasing by Rs 5 every year .

7) Which all groceries are available earlier ? Why are they not available now ?

Grocer : In the olden days , we got food grown naturally without any chemicals . Also nowadays most grains are hybrid or genetically modified . In the olden days , grains such as navane , baragu , millets , etc were available and were consumed in large quantities . But they disappeared for a few years as the their consumption became very low. But , nowadays , once again , with people trying organic foods and healthy diets , etc., they (millets , baragu , etc) are regaining popularity .

INTERVIEW WITH GROCERY SHOP OWNER.



Name of vegetable/grain	From*	Present price	earlier price/kg	distance travelled	CO ₂ emission in kg
Rice	Bellary	₹ 60	₹ 25	313 km	12,457 kg
wheat	Punjab	₹ 35	₹ 10	2525 km	1,00,495 kg
Onion	Chitradurga	₹ 20	₹ 4	203 km	8079 kg
Tomato	Kolar	₹ 10	₹ 3	69 km	2746.2 kg
Beans	Tumkur	₹ 80	₹ 10	70 km	2786 kg
cucumber	Mysore	₹ 25	₹ 2	184 km	7323.2 kg
carrot	Chickballapur	₹ 30	₹ 2	58 km	2308.4 kg
Potato	Hassan	₹ 25	₹ 5	182 km	7243.6 kg
capsicum	Mandya	₹ 20	₹ 4	99 km	3940.2 kg
Beetroot	Anekal			35 km	1382.5 kg

* Vegetables are brought from various places within Karnataka. One place has been selected per vegetable for calculation of CO₂ emission.

ENERGY CONSUMPTION

- × Total bill amount paid in the month of September-
Rs 130192.00
- × Per unit electricity rate in Bangalore :
Rs.5.68/kWH
- × Total units of electricity consumed in kWh = 22921 kWh
- × Electricity Emission factor of Kg of CO₂e/kWh=1.56
 22921×1.56
= 35756.76 in Kg
= 357.75676 in Tons of CO₂e
- × Methods adopted for energy conservation:
 - 1) Well ventilated and bright classrooms
 - 2) Solar panels:- 10kV of current.

VENTILATED CLASSROOMS.

HIGHLY VENTILATED CLASSROOMS TO
REDUCE THE USAGE OF FANS AND
TUBELIGHTS.



SOLAR PANELS



INCLUSION OF SOLAR PANLES AS AN ALTERNATIVE FOR THE ELECTRICITY SUPPLIED BY THE BESCO.

WATER CONSERVATION.



DRIP IRRIGATION

25/10/2017



COLLECTION OF RAINWATER.

25/10/2017 14:34

**OUR SCHOOL'S STEP TOWARDS
CONSERVATION OF WATER.**

WATER CONSERVATION

Water Usage :

Daily : 90,000 L of Water

Monthly : 2,700,000 L of Water

Yearly : 32,400,000 L of Water

WATER CONSERVATION TECHNIQUES IN AREA OF STUDY

1. Rainwater Harvesting from Terrace

Our School has a Rainwater harvesting system where the water is collected in the terrace and stored in underground tanks.



2. OVERHEAD TANKS

It also has Overhead tanks which utilize the water stored in the sumps which in turn come from the Rainwater harvesting. There are many tanks and so this helps in the complete utilization of the rainwater to fill these tanks and thus Rainwater is not wasted but is used instead.



3. WAY THE WATER IS USED.

The water collected by the Rainwater harvesting system is filtered and used for drinking and a variety of other purposes thus reducing the need of external water supply greatly and increasing the usage of rainwater as the primary source of water.



**USE OF SUCH TAPS TO REDUCE THE
WASTAGE OF WATER.**



LIFE CYCLE OF TEXTILES.



TYPES OF FIBRES AVAILABLE	TEXTILES AVAILABLE FROM THE FIBRES	NUMBER OF PIECES AVAILABLE	COST PER PIECE	SALES – PRESENT AND BEFORE TEN YEARS
1. Cotton	Shirts, sarees, salwars, dhotis, handkerchieves	3000 each	Ranges from Rs 50 - 5000	Increased by 12000 pieces until now
2. Silk	The same along with scarves, lehengas etc	5000 each	From Rs 700 - 25000	Decreased by 500 pieces
3. Wool	Sweaters, shawls, mufflers, etc	2000 each	From Rs 200 - 2000	Increased by 1000 pieces
4. Leather	Jackets, coats, etc	300 each	From Rs 2500 - 5000	Decreased by 100 pieces
5. LINEN	Curtains, bedsheets, pillow covers, etc	2000 each	Ranges from ₹ 1000 - 9000	Increased by 5000 pieces
6. Denim	Pants, bags, etc	600 each	₹ 800 - 1200	Increased by 600 pieces

VISIT TO A FARM THAT PRODUCES COTTON



VISIT TO A FARM THAT PRODUCES COTTON

After observing the plant we could conclude it to be a shrub and under natural conditions, the cotton bolls increased the dispersal of seeds.

The key requirements stated by the farmers were

~ plenty of sunshine

~ moderate rainfall The conditions also include where soil needs to be heavy

As stated by them Production of the crop is started after harvesting the preceding autumn and the planting time varies from February to June

Cotton can also be cultivated to have colors other than the yellowish off-white typical of modern commercial cotton fibers.

Naturally colored cotton can come in red, green, and several shades of brown.

Their knowledge about BT Cotton, shows that they are on par with the tech world, when interrogated they explained how the plants were irresistible to a particular bacteria (we found it to be *Bacillus thuringiensis*) they found out about BT Cotton, but on the contrary they were not ready to spend on this because BT cotton was ineffective against other pests like pink bollworm while the only resulting solution was the use of pesticides for them.

They harvest it and sell it to the industrialists where it is spun into yarn or thread and used to make breathable textiles.

STORY OF SAND



PHYSICAL PROPERTIES

AUGUST 2017

1) Color :- Blackish
Brown

2) Texture :- 65% Clay
25% Silt
10% Sand

SEPTEMBER 2017

1) Color :- Blackish
Brown

2) Texture :- 70% Clay
20% Silt
10% Sand



AUGUST 2017

SEPTEMBER 2017

3) Field Density :-

1.12 gram/cubic
centimeter

4) Bulk Density :-

0.97 gram/ cubic
centimeter

3) Field Density :-

0.804 gram/cubic
centimeter

4) Bulk Density :-

0.655 gram/ cubic
centimeter

AUGUST 2017

5) Water Content :-
150 grams of the soil contains 17.5 grams of water as per the experiment carried out in the lab. This implies that the water content in the soil sample is equal to 11.6 %

SEPTEMBER 2017

5) Water Content :-
50 grams of the soil contains 9 grams of water as per the experiment carried out in the lab. This implies that the water content in the soil sample is equal to 18% [Experiment conducted after rainfall]

CHEMICAL PROPERTIES

1)pH :- Proper pH is very essential to ensure proper growth of plants.

pH of the school soil was found to be slightly less than 7. [Same for both the months]



Paper Waste Management

Date of collection	Weight(in Kg)
11 th October	2.225
12 th October	1.783
13 th October	1.947
14 th October	2.154
16 th October	1.866
17 th October	2.083

Average 2.009

SOURCE REDUCTION – AT VPS.

Curriculum Materials:

- Double sided copies
- Encouraged use of “ Back paper”
- Reuse of textbooks

Administration:

- Double sided copies
- Regulation of copier use
- Electronic Messaging
- Electronic record keeping
- Purchase of recycled content materials
- Bulk purchasing



SCHOOL RECYCLING PLAN

1.OUR SCHOOL HAS KEPT TWO DUSTBINS IN EACH CLASS,ONE FOR WET WASTE AND THE OTHER FOR DRY WASTE.

2.ONE DUSTBIN IS KEPT IN EACH FLOOR FOR THE FOOD WASTE.

3.THE WASTE GENERATED IS TURNED INTO MANURE FOR THE DIFFERENT VARIETIES OF PLANTS THAT ARE BEING GROWN IN OUR SCHOOL.



GREEN LIFE STYLE

A photograph showing four metal water bottles of different colors (red, pink, blue, and copper) placed on a wooden desk in a classroom. In the background, there are several colorful backpacks hanging on a shelf. The text 'OUR SCHOOL STUDENTS USING STEEL AND COPPER BOTTLES TO BRING A STOP TO PLASTICS.' is overlaid on the image.

OUR SCHOOL STUDENTS USING STEEL AND COPPER BOTTLES TO BRING A STOP TO PLASTICS.

USAGE OF STEEL TUMBLERS FOR THE BEVERAGES PROVIDED TO THE TEACHERS.



THANKYOU