

# NATURE



# Nature

*Nature. What is nature? Nature is the phenomenon of the collective physical world which include the products of Earth i.e., landforms, plants, animals and other products which is opposed to human creations. Study of Nature itself contributes a major part of Science.*

Present circumstances are destroying Nature bit by bit. This is because of the lack of awareness among people. But, one strong mind can attract others towards itself and teach them the importance of Nature and her products. So, on the whole, protecting Nature should be stored in every individual's mind.

Nature Science Internship Programme or NSIP for short has the golden aim of spreading awareness to preserve our environment. Also, we (JKV'ians) are a part of this prestigious organization to help create awareness. Our main motto is to study our environment and prepare a status report so as to gain the detailed information of our surroundings. Our main objectives are displayed in the next slide.

# OBJECTIVES

- Performing Nature Trails. (in-turn studying about Trees, leaves etc...)
- Report on birds and butterflies encountered.
- Collect water and soil samples and analyzing them for pollutants.
- Mapping, area covered.
- Ensuring a green lifestyle in our lives and spreading awareness.
- Create awareness regarding Food Mile, Waste management and management of textiles.

# BACKGROUND INFORMATION OF STUDY AREA

We have studied various areas.

1. Dorekere
2. ISRO Layout Park

## DURATION OF STUDY

The duration of visit varied during each visit. The first time we visited Dorekere on the 14<sup>th</sup> of August and duration of that visit was 3 hours.(approx.) The duration during the second visit was little lesser.

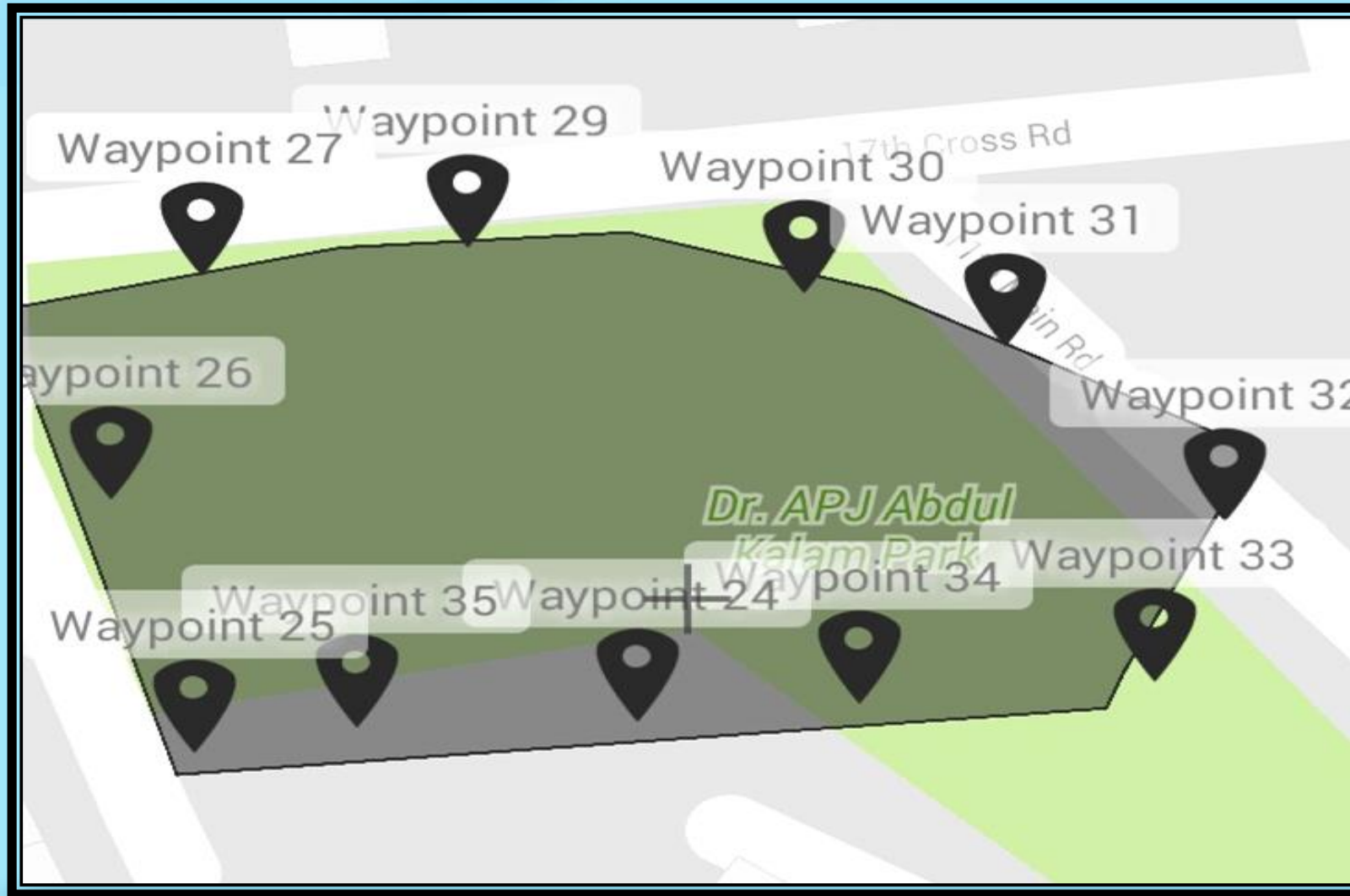
The visit to ISRO Layout Park was quite glorious. Duration: 2 hours (twice)

# MAP OF STUDY AREA

- Mapping area of Dorekere is as follows :-



# APJ Abdul Kalam Park (1<sup>st</sup> visit)



# TREE STUDY

## THE PINK TRUMPET

- The shoot part of the tree was in the shape of a flame while being more broader at the base and tapering at the top.
- Girth – 5”11 feet
- Height – 18” feet
- Oxygen Measurement

# OTHER TREES SPOTTED

LOCAL NAME	SCIENTIFIC NAME	NUMBER	FLOWERING/FRUTING /LEAFY
COPPER POD	PELTOPHORUM PTEROCARPUM	15	FLOWERING
SINGAPORE CHERRY	MUNTINGIA	4	FRUTING
JAMUN TREE	SYZYGIUM CUMINI	5	FRUTING
NEEM TREE	AZADIRACHTA INDICA	1	LEAFY
SILVER OAK	GREVILLEA ROBUSTA	7	LEAFY
PONGAMIA	MILLETTIA PINNATA	20	FLOWERING
ASHOKA TREE	SARACA ASOCA	17	FLOWERING
TAMARIND TREE	TAMARINDUS INDICA	2	FRUTING
PEEPAL	FICUS RELIGIOSA	2	LEAFY

# BUTTERFLIES

We had encountered numerous butterflies on our path. The detailed report of butterflies is as follows :-

LOCAL NAME	NUMBER	ACTIVITY	GROUP / SINGLE	HABITAT	FLOWERS/ PLANTS VISITED
AFRICAN MONARCH	One	Sucking Nectar	Single	Open grasslands	None
SUMMER AZURE	One	Flying	Single	Woody Areas	None
CABBAGE BUTTERFLY	Two	Flying	Single	Open spaces with flowers	None
TAILED GREEN JAY	One	Flying & Flapping	Single	Gardens, Urban Areas	None
COMMON EARL	Many	Sunbathing	Group	Marshy & Damp areas	Weed Flowers
EUPLOEA CORE	One	Flying	Single	Elevated areas	None
COMMON VAGRANT	Three	Flying	Group	Moderate and Warm areas	None
ORANGE SULPHUR	Two	Mating	Pair	Marshy and Dry Areas	Weeds

# BIRDS

Birds (*Aves*) are a group of endothermic vertebrates, characterized by feathers, toothless beaked jaws, the laying of hard-shelled eggs, a high metabolic rate, a four-chambered heart, and a strong yet lightweight skeleton. Birds live worldwide and range in size from the 5 cm (2 in) bee hummingbird to the 2.75 m (9 ft) ostrich. Some of the birds we encountered are in the next slide.

LOCAL NAME	NUMBER	ACTIVITY	SINGLE / FLOCK	FLIGHT/ TREE/GROUND/ WATER
COMMON CRANE	12 ( IN FLOCK)	EGESTION	FLOCK	WATER
BLACK KITES	2	FLYING	SINGLE	TREE
SPARROW	1	FLYING	SINGLE	TREE
HONKERS	2	FLYING (in V-formation)	DUO	FLIGHT
EAGLE	1	FLYING	SINGLE	FLIGHT
CUCKOO	5	SINGING	SINGLE	TREE
HERON	17	FLYING	FLOCK	FLIGHT
BLACK DUCKS	3	SWIMMING	SINGLE	WATER
LONG GILLED PELICAN	2	SWIMMING	SINGLE	WATER

# WATER QUALITY ANALYSIS

Water samples were collected from Dorekere and was analyzed in the laboratories. The type of sampling analyzed was **GRAB** sampling. The site of water selection was **CENTRE**. Report is as follows :-

- Temperature of Water –  $25.5^{\circ}\text{C}$
- pH – 5.5 (Acidic) [ pH paper was used ]
- Amount of solids :-
  1. Total Solids (TS) – 0.02g for 10 mL of water.
  2. Total Dissolved Solids (TDS) – 0.01g for 10 mL of water.
  3. Total Suspended Solids (TSS) – 0.01g
- Biological Oxygen Demand (BDO) – 4.8mg of  $\text{O}_2$  present in a liter of water.

[ 4.8mg of Oxygen present in a liter of water indicates that the water is moderately polluted. ]

- Alkalinity – 940 mg/L

{P.S: Total, Calcium and Magnesium Hardness not tested due to lack of indicators.}

# PLANKTON & MACROPHYTES ANALYSIS

## ❖ Commonly found Algal groups in Dorekere :-

- SPIROGYRA

## ❖ Macrophytes found in Dorekere :-

- Alligator weed
- Cattail Marsh
- Buckwheat
- Water Primrose
- Nut Grass

# SOIL ANALYSIS

Soil samples were collected from APJ Abdul Kalam Park and were tested and analyzed in the laboratories. Report:-

- **Color of soil** :- Reddish-Black
- **Texture** :- Sand < Silt & Clay  
{Classified as Fine Soil of particle size 0.002mm – 0.075mm}
- **Suspended Particles** took two days to settle down.
- **Water Content** :- 3.1g of Water
- **pH** :- 5.5 ( Acidic )

# PHOTO OF SOIL SAMPLE AFTER EXPERIMENT



# FOOD MILE

Realizing the importance of Food Mile, our team interrogated and interviewed countless people.

Questions were referred from the manual and some recurrent answers include:-

- The vegetables were bought from KR Market
- Vegetables were grown in Kanakapura, Ramnagar, Chikkaballapur, Kolar & Hoskote.
- The price over the years is found to be increasing and profitable.
- Okra (Lady's Finger), Brinjal, Bottle Gourds and Cucumber are some of the vegetables which were abundant in quantity during the earlier days.

- Also, according to our statistics, because of Hydration and Importing, many vegetables including Cauliflower, Broccoli weren't available in much in the earlier days.

Our Point of view :-

- Since vegetables are grown afar, we need to stop wasting food.
- Even though they might be available in abundance, if the wastage continues, the demand increases and the future generation would suffer for a mistake they did not commit.

# THE SURVEY OF TEXTILE

Textiles are a basic necessity in our lives. Textile shops were interviewed by our team. (Questions, again were referred from the manual while some were asked by our own interests.) Some recurrent answers include:-

- Most of the customers preferred Natural Fibers. Even sellers reported that Natural fibers, especially cotton fabrics were the most sold ones.
- The sellers whom we interviewed are unaware of the manufacturing process. But we do believe, after significant data collection, it is manufactured in TIRPUR, SURAT & AHMEDABAD. Silk is manufactured either in KANCHEEPURAM or MYSORE.

- Also, the prices of textiles have subsequently increased over the years becoming a good profit for the shopkeepers/sellers.
- Synthetic fibers were the least preferred ones.
- Season is one of the determining factors for the average sales of textiles during a week or a month.
- Cotton, as said earlier, was preferred as it is biodegradable and comfortable to wear during most of the seasons.
- Also, wool import is found to have decreased over the years. (according to a shopkeeper)

# WASTE MANAGEMENT

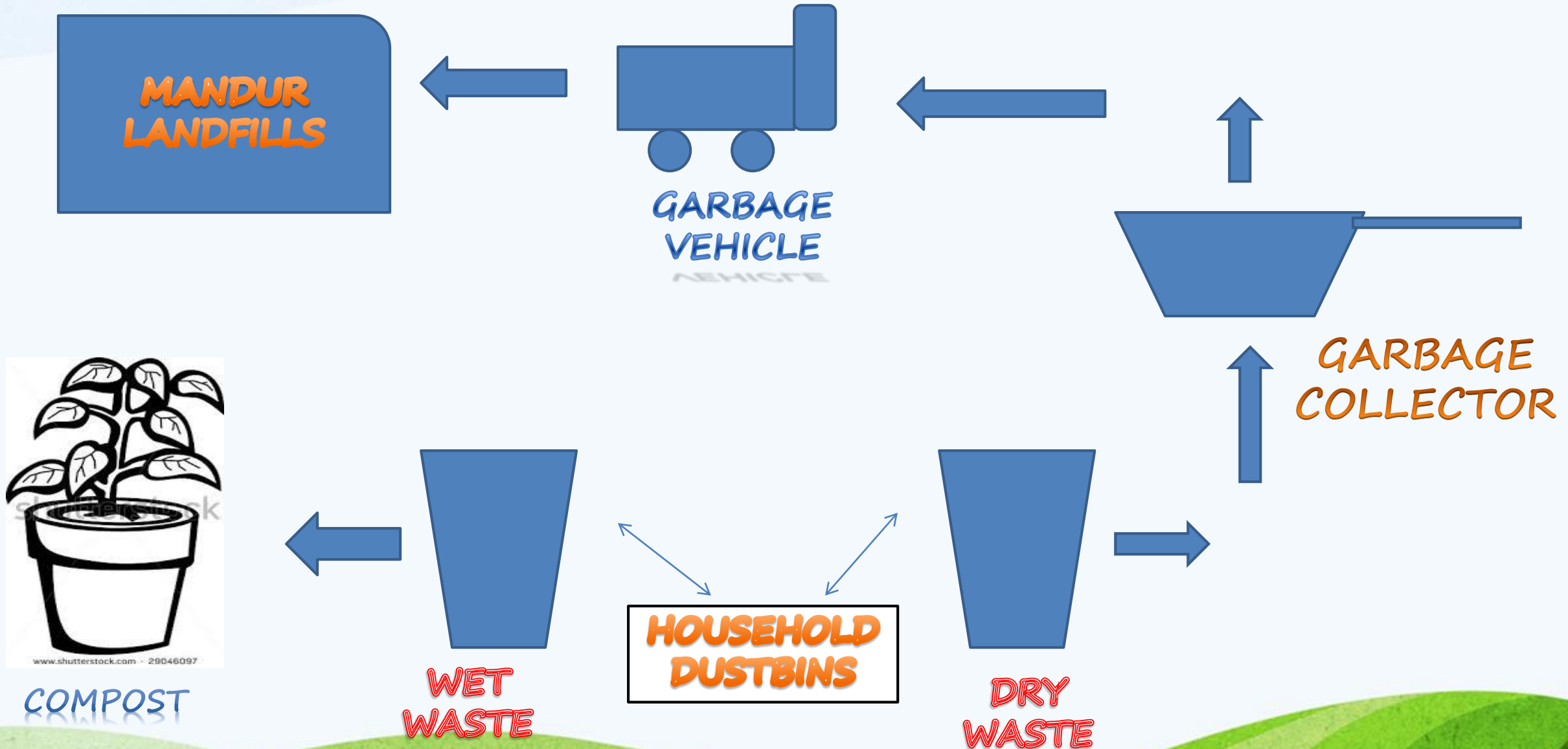
To know better about waste management, we had surveyed many people regarding this topic.

We discovered that :-

- People residing in apartments or flats have compulsorily followed WASTE MANAGEMENT in their houses.
- While some are doing it for the sake of the society, others do it their own personal interest and care towards environment.
- Biodegradable wastes from homes are used as compost while non-Biodegradable wastes are sent to dumping stations.

- Most of the people have reported that waste management has helped them in many ways including the reduction of odor and much more cleaner environment around them.
- People are really interested to spread awareness, based on our reports, they tend to spread awareness through Social Media, Posters, Public Addresses etc...
- It has also led to the promotion of good health around people.
- Learning waste management help us to identify the wastes, and classify them as reusable or recyclable and thus can promote to less wastes in an annum.

# WASTE CYCLE



# GREEN LIFESTYLE

Green living is a lifestyle that tries in as many ways as it can to bring into balance the conservation and preservation of the Earth's natural resources, habitats, and biodiversity with human culture and communities. We understand the need to embrace practices which have little (or no) negative impact on our environment both now and in the future, to reduce waste and consumption, to work with Nature in creating sustainable food systems and living arrangements, and to strengthen local communities and relationships.

Our team had interviewed HOTEL KAMAT [TUMKUR-BANGALORE HIGHWAY] and the details are in the next slide.

# USAGE OF PLASTIC

## PLASTIC STRAWS:-

- i. Weekdays : 1 kg (approx.)
- ii. Weekends : 2-3 kilograms

[1 kg of straw contains around 2000 straws]

{ The packets are bought at a wholesale rate of cost around  
Rupees 100-150 per kg }

## PLASTIC CUPS:-

- i. 400-500 Cups per day (used only for take-away purposes)
- ii. Cost : Packet containing 100 cups costs Rupees 150. Approximate cost for a day is Rupees 400-500

P.S : All these plastic straws and paper cups are disposed in dustbins. They are then sent away through garbage collecting vehicles.

# CARBON FOOTPRINT, ENERGY CONSERVATION & WATER CONSERVATION

The amount of emission factor of paper used in our school is :-

$$\underline{6} \text{ kg} \times 3 \text{ ( for 1 month ) [Emission factor = 3]}$$

$$\underline{6} \text{ kg} \times 3 \times 12 \text{ ( for 1 annum ) [Emission factor = 3]}$$

$$= \underline{216} \text{ kg of CO}_2\text{e}$$

Water usage in our school per day is 2000 liters

Therefore usage of water per month is 2000 x 30 (approx.) liters.

Hence, total usage of water per year = 2000 x 30 x 12 liters

$$= \underline{720000} \text{ liters}$$

- We can reduce the amount of water used by following some simple methods like using a watering can instead of pipes. Following rain water harvesting the amount of water used per annum.

- Total amount of Electricity Bill per annum = Rs. 645817

Rate of electricity per unit is Rs. 7 per KW

Total units of electricity consumed =  $\text{Rs. } 645817 / 7 = 92259.6$

Electricity Emission Factor kg of CO<sub>2e</sub>/kWH = 1.56

$92259.6 \times 1.56$

= 143924.976 in kgs.

# CONCLUSION

- We have come to the end of the presentation and we do believe that it was a grand success.
- We were able to learn much more about our dear environment because of the nature trails we performed.
- We sincerely thank NSIP for assigning us this beautiful project.
- We, NSIPians will pledge to create awareness on some of the topics mentioned to as many people as possible.

# THE TEAM BEHIND THIS

Our team consists of 12 members which comprises of 10 students and 2 teachers :-

- Aakanksha
  - Ananya
  - Chirag
  - Kausthub
  - Manaswini
  - Shreya N
- Shreya S
  - Shriya D
  - Sourabha
  - Varun
  - SR ( Teacher )
  - SGP ( Teacher )



**THANK YOU!**