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## **Introduction**

Main objective of this school is to empower the children of Udaipur with the knowledge, understanding skills and attitudes to become an agent for transforming society of Udaipur and Tripura at large.

In order to fulfil this ambitious dream of raising intellectually and morally empowered citizen for making positive transformation to Udaipur, it is needed to provide students with more than just direct-instruction and drilling on the prescribed academic content. To achieve this aim we are supplementing Central Board's (CBSE) curriculum with a program that helps to develop critical thinking skills, inculcate a strong sense of social responsibility for serving society. Students learn different subject related topics through service. The name of the programme is called Service Learning Project. Service learning Project establishes links between classroom and society at large. Issues of the society are brainstormed and studied in-depth and looked for solutions to the problems. It is observed that service projects are benefitting us in different ways, e.g. project helping different subjects like Language, Science, Math etc., and teachers are also developing skills of becoming better facilitators. So far our school students have done 7 successful projects and our current project is Waste Management. These projects have been instrumental in developing many skills in students through different phases of the project. It addresses questions like what students should learn and be able to do, why, how and how well.

In the following document, we will try to display our journey through the current project and the various learning and insights that we gained through the same.

## Making Groups and Choosing of Topic

### **Making groups:**

Small groups (4-5 students in each) were formed in each class based on the following criteria:

- At least one student must be proficient with using the computer and internet
- At least one student must be proficient in reading comprehension
- Group must be balanced in gender of students

Each group was then asked to appoint a facilitator among themselves (exempting those kids that had already served as facilitator in a previous project).

**Observations and Reflections:** Teachers faced problems while making groups in Grade 7 –girls and boys expressed discomfort in being placed together. The teacher seized the teachable moment at hand to discuss how we cannot only work with individuals we are comfortable with, agree with, or friends with; we need to learn to work in harmony with all kinds of personalities and individuals. After the discussion, mixed gender groups were formed.

### **Choosing of Topic:**

In their small groups, students were asked to discuss and list out those problems that they had faced by their community which they would like to focus in their project. Each group was requested to consolidate their list into a 'top 3' problems list. Each group then presented their list to the whole class, which was recorded on the white board.

*List of problems identified by small groups, combined onto the white board*

Next, students (in a large group) were asked to choose only 3 problems from the entire list on the white board, based on the following criteria:

- Problem must be relevant to Udaipur
- Scope and Scale of the problem must be practical for execution by students
- Problem must allow for integration of topics from science, social studies and other subjects' syllabus

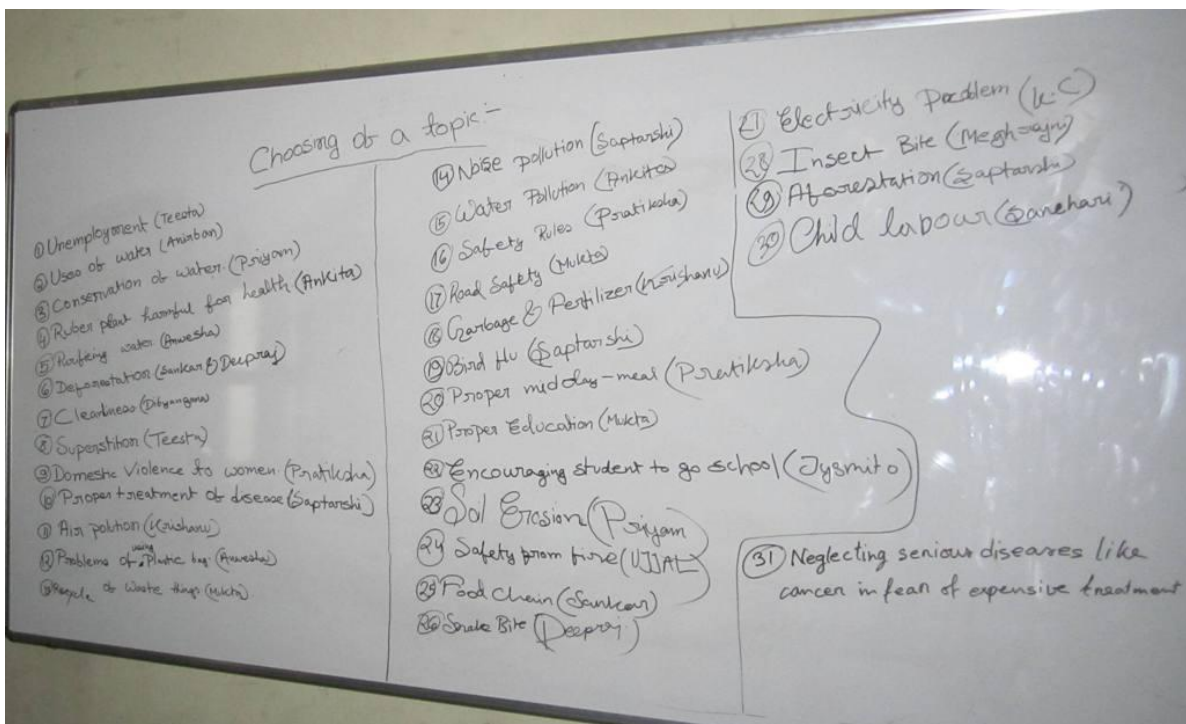


Megragini sharing her group's point before finalizing project topics by vote.

Teachers, on collecting the final list of 3 problems from each class, realized that the one issue repeating itself across the classes was **“Garbage and Waste Management in Udaipur”**. Hence, this issue was chosen as the topic for the service-learning project.

**Observations and Reflection:** The students enjoyed the exercise of choosing the topic for their project. The teachers observed that every group easily identified a number of problems existing in Udaipur. It was impressive to learn that the students were well aware of such issues – ranging from problems with the dowry system, women’s rights, road safety, and protecting the environment. The students even provided compelling reasons for including such problems in their lists. It was also impressive to see that even the 9 year old Grade 3 students could managed to make lists of problems that were aligned with the criteria given.

Also, the enthusiasm shown by students across all grades, to embark on a service project that would help their community’s welfare, was noteworthy and inspiring!



## Identifying Specific Problems from Topic

In the choosing of topic students have identified number of problems and choose 'Garbage and Waste' as their project topic. Since "Garbage and Waste' is a broad topic, the teachers decided to lead the students into further discussion and research to help them identify specific problems related to the overarching issue. Identifying specific problem was done in two ways:

- Small group discussion on chosen topic
- Collecting primary data through 'Survey'

In the small groups, students were asked to discuss and list down 2-3 specific problems being faced in their neighbourhood due to garbage and waste. After making lists of 2-3 specific problems related to the issue at hand, the teacher asked them to save their points. Before the students identified the specific problem that they wish to work on, it would have been a good idea for students to get primary data through survey. It was also important to take the views of the members of their community about the issue under discussion (and also the specific problems related to it in Udaipur). In order to help them systematically collect and analyse the opinions of their community members, students were introduced to the tool of survey.

### **SURVEY**

#### **What is survey?**

A survey is a data collection tool used to gather information about the problems. Surveys are commonly used in different field of research. A survey may focus on factual information about the problems, or it might aim to collect the opinions from community members.

#### **Reasons for Conducting Surveys:**

Organizations conduct surveys to discover answers to certain questions. These questions are different in types. Below are three reasons for organizations to conduct surveys:

1. To discover what's going on in the community
2. To provide an opportunity to discuss the problems with the community
3. To plan you action based on survey

This information and opinions can be collected with help of questionnaires (a list of specific questions related to the topics):

#### **Tips for making a good questionnaire:**

- Make your questions clear
- Avoid repeating the questions
- Questions should be easy to answer
- Questions should be relevant to the topic
- Avoid negative questions
- Questions should be short
- Do not ask personal questions unless it is necessary
- Present your questions in organized and systematic manner
- Avoid questions that are biased
- Keep your questionnaire as short as possible.



*Tuhin sharing his opinion during group consultations*



*A group discussion in Grade 7*



Anirban is reading Survey document



Hrittika and Srijita is studying and taking note

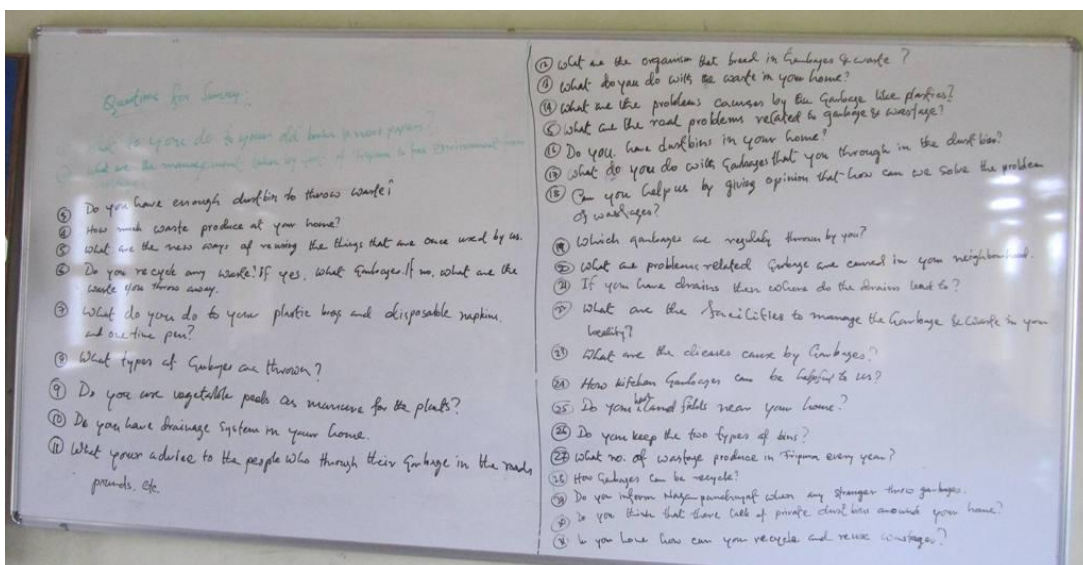


After studying this document, students were asked to make a list of questions (in their small groups) that they would like to include in their questionnaire, keeping in mind the tips provided for making an effective questionnaire.



Mukta, the group leader is facilitating the group and finalising group's questionnaire

Questions from every group were recorded on the white board, totalling to between 30 to 50 questions. The teacher explained to the students that it was important for the questionnaire to be short, and hence, the entire class would have to choose only 3 or 4 questions from all those recorded on the white board for inclusion in the final questionnaire. Students were advised to think of all the tips presented earlier while making their decisions on which questions to omit and which to include. Most importantly, they were constantly reminded to assess whether the questions under consideration were relevant to their topic of inquiry or not.



Unedited list of questions

**The final questionnaire of different classes is as follows:**

**Grade 3:**

1. What do you do with waste of your place?
2. What will be the result of throwing garbage outside?
3. What are the problems you are facing due to garbage and waste?

**Grade 6:**

1. What do you do with your waste materials?
2. How are you throwing the waste materials?
3. Do you utilize the waste materials?

**Grade 7:**

1. What do you do to your wastes produced at your place?
2. What are the possible problems cause by garbage and waste at your place?
3. Are there any facilities to manage the garbage and waste in your area?

**Observations and Reflections:** Through their study and practical exercise, the students really seemed to grasp the importance of surveys as a tool for collecting information. Though the exercise of consolidating a large list of questions into a smaller, more articulate and appropriate one required a great deal of time and critical thinking from the children, the teachers were surprised by the students' ability to distinguish relevant questions from irrelevant ones so successfully. Students also used their understanding of grammar to change the sentence construction of questions to make them easier to read and clearer, they merged questions that were similar, etc.

Before this exercise was started in Grade 7, the teacher discussed with students that once each group shares their questions and they are recorded on the white board, the questions no longer belong to those small groups – but instead, they belong to the whole class. Thus, the exercise at hand must be conducted with objectivity and detachment by the students, being conscious not to cling to those points that were stated by their group only. This discussion seemed to help, because the consolidation exercise went rather smoothly; students provided sufficient justifications for the inclusion or exclusion of questions which was met with a reasonable consensus most of the time.



## Group Conference

The purpose of this activity is to engage students in extensive reflection and collaboration, to finally arrive at and conclude a list of questions that they want to do further research on, *know more about*.

Students are divided into 5-7 groups, and each group makes a preliminary list of comprehensive questions that are related to the topic. Then each day, all the groups present questions they came up with to the larger group, and each question is reviewed, discussed and then finally chosen or rejected by the class. The students engage in critical thinking and constructive feedback activities, sharing their opinions on whether the said question is related to the topic or not, whether it will add value to their SLP/won't, and finally whether it should be on their final list or not.



The **structure of this activity** is such that there are 5-7 groups (Each with an assigned leader/speaker for each day), one facilitator of the discussion (decides who will speak when, conducts overall discussion and helps students to make conclusions/decisions), and one writer who writes the selected/rejected questions either on the board or in a notebook.

In the course of the SLP, students explore their project topic (*Garbage and waste management* in this case) in depth and come across many opportunities for learning/ situations that were needed for them to amass a lot more knowledge through inquiry and research. That is why we give them such a platform to raise all such areas where they would like to inform themselves more in detail, and fuel all their curiosities. Having this knowledge and the answers to all their questions will help them do their project in a much more structured, informed and disciplined manner and also to

present actual, sustainable, meaningful solutions at the end of the project. Across Classes 3 to 7, students engaged in and came up with 20-30 questions per class that encompassed all aspects of the topic (scientific, historical, geographical, cultural, statistical, technical, etc.). Here is a sample questions came out of group conference:

### **Class 6 Final Questions**

1. How do people use degradable garbage as manure?
2. What is the effect of throwing plastic in drains and how to prevent it?
3. What are the essential steps to stop the non-degradable garbage from affecting the agriculture?
4. How can we use the natural fertilizers in our daily life?
5. Does the death caused by diseases related to garbage increasing or decreasing year by year in the country?
6. What are the diseases occurred while cleaning the garbage?
7. How can we aware the people to clean the environment?
8. What are the benefits of making 2 separate dustbins, degradable and non-degradable?
9. What are the effects of throwing garbage in drains? How can we prevent this?
10. What is the first step to stop people from digging the ground to throw garbage?
11. What are the benefits of covering drains and dustbins?
12. What are the main reasons of garbage being more and more in the cities?
13. How can we make the people aware against throwing garbage in the drains?
14. What are the first steps to stop garbage affecting society?
15. Can plastic cause any diseases to living beings? If yes, then how?
16. How can we prevent the water bodies from being destroyed by garbage?
17. What steps will make a positive difference to Tripura?
18. What are the benefits of using natural fertilizers? How can we use these in real life?
19. Are the deaths caused by garbage-related diseases increasing or decreasing every year? And in which countries is it most?
20. Which types of materials can be recycled most?
21. Which materials in the world are reusable?
22. Why is there more garbage in the cities compared to the villages?
23. How can we make the people aware about waste and recycling garbage?
24. What are the different types of electronic gadgets can be recycled?
25. Which countries in the world manage the garbage properly and how they do it so?
26. How many people die due to diseases caused by garbage and waste every year in the world, Country and state?
27. Which are the agencies responsible for managing the garbage in Tripura and Udaipur?
28. What are the steps government is taking to promote recycling?
29. What can we do to manage garbage related pollution in Udaipur?
30. Which one can harm environment more bio-degradable or non-bio-degradable waste and in what ways?
31. What is the best process of reusing bio-degradable wastes?

**Observations and Reflections:** There are great back-and-forth discussions, and the students learned how to value the opinions of others, and still present their own in a constructive and logical manner. Ownership level was very high as we gave them the opportunity of conducting conference. Critical analysis of each question occurred, and there was constantly a connection between this task and achieving the larger goals of the current project.

## Subject integration

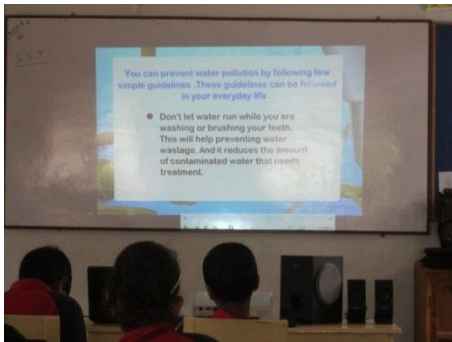
While the students engage in inquiry and discussion on a daily basis in their Service Project classes, it is important to supplement these activities with theory knowledge that is related to the topic in an inter-disciplinary and cross-curricular manner. *Inter-disciplinary* means some issues which belong to many disciplines or subjects. It integrates mathematical, scientific, sociological concepts with the topic of the project. *Cross-curricular* means something that can be done with students of different ages, and in various classes that are otherwise not related to the project.

In regular classes, teachers try and do a chapter or two on concepts that will fuel their knowledge in that discipline, as well as promote their understanding of the Service Project being undertaken. These modules or classes are classified as academic/subject integrations.

Some examples from this project are:

- Class 6 studied in detail about *Plastic and its composition, types of plastics and their everyday uses, effects on the environment and on our health, manufacturing processes and recycling processes*. We didn't just do a theoretical overview, but rather engaged in various activities, experiments, watched films from inside manufacturing/recycling units from around the world, and did a detailed inquiry-based study on the topic. This helped us to understand that if plastic is used in a very scholarly manner. It also helped us to know how fruitful it would be if all people learnt how to reduce their consumption of plastic. It also shows the need of proper infrastructure in Tripura for optimal collection, disposal and recycling of plastic.
- Class 7 studied maps from around the world that graphically depict all the countries around the world and how much waste they produce, how much waste they manage, and the amount of deforestation that happens. We learnt that 46% of the world's deforestation happens in India alone! We also learnt that India is the top producer of solid waste across the globe, and contradictorily the country with the least % of waste managed/correctly disposed of. It was really insightful and also stirred some very deep reflections within us all, to be part of a change or transformation of our country and the way people around the world perceive us.





Here are some moments that were captured in different modules that were conducted across classes 3-7, in an effort to link the main curriculum to the Service Learning Programme:

Teacher	Subject	Nature of Integration	Skills built/ Key Learning Points
1. Santana	Science 7	Composting: Making fertilizer from biodegradable waste	<ul style="list-style-type: none"> <li>The various microbes, bacteria and organisms that play a role in decomposition process.</li> <li>Biodegradable and non-biodegradable materials.</li> <li>How to separate garbage in a way that allows for its proper disposal.</li> <li>Scientific process of composting.</li> </ul>
	Science 7	Metals: Types, practical uses, recyclability and recycling process	<ul style="list-style-type: none"> <li>Different types of metals and their physical composition.</li> <li>Everyday uses/ examples of different metals.</li> <li>Process of recycling metals through <i>collection, sorting and melting</i>.</li> <li>Which are more recyclable than others? For example, aluminum.</li> <li><i>Informal metal recycling industry in slums of India: A case study</i></li> </ul>
	Science 5	The science behind <b>composting</b>	<ul style="list-style-type: none"> <li>Biodegradable and non-biodegradable materials.</li> <li>How to separate garbage in a way that allows for its proper disposal.</li> <li>Scientific process of composting.</li> </ul>



<b>2. Jaya</b>	<b>English 6 &amp; 7</b>	Comprehension passages + exercises on recycling, landfills.	<ul style="list-style-type: none"> <li>• Reading and comprehension skills developed by reading high-level prose on relevant issues.</li> <li>• Key facts about landfills, structure, scientific process.</li> <li>• Statistics on recycling from around the world.</li> <li>• Process of recycling different materials, and their positive outcomes.</li> </ul>
<b>3. Santanu</b>	<b>Science 6</b>	Plastic, types of plastic, benefits and negative impact, effects of improper disposal, and the correct recycling process	<ul style="list-style-type: none"> <li>• Students watched real films on the manufacturing and recycling processes of plastic bags, bottles, and other products.</li> <li>• Practiced sorting in-class so as to get an idea of different types of plastics.</li> <li>• Have developed a strong sense of the adverse effects that specific types of plastic have on the environment/ human beings.</li> </ul>
<b>4. Apu Roy</b>	<b>Social Studies 7</b>	History and origin of recycling practices in the world	<ul style="list-style-type: none"> <li>• Origins of recycling since the Byzantine and Roman empires, who used to melt glass and metals respectively in humongous quantities for various purposes.</li> <li>• Waste management in Pre-industrial, industrial, pre-WWII and post-WWII eras.</li> </ul>
	<b>Social Studies 7</b>	Analysis of World mapper maps: <i>World by population, area, waste collected, waste recycled and forest depletion.</i>	<ul style="list-style-type: none"> <li>• Studied about how India leads the world in population, but doesn't even show on the map when it comes to proper collection and recycling of waste.</li> <li>• Also learnt about how 46% of the world's deforestation happens in our country alone.</li> </ul>
	<b>G.K. 6</b>	Statistics and facts about recycling	<ul style="list-style-type: none"> <li>• Percentage of waste recycled, landfilled and composted in different developed/ developing nations of the world.</li> <li>• Facts about recycling, for example, recycling one ton of paper saves seventeen trees.</li> </ul>
<b>5. Pintu Das</b>	<b>Mathematics 3</b>	Data Handling (refer <i>Data Handling</i> chapter)	<ul style="list-style-type: none"> <li>• Analyzed real data from the student surveys in Udaipur.</li> <li>• Students represented creatively data about <i>how many people use dustbins, what are the reasons for not using them, and problems faced by undisposed garbage.</i></li> <li>•</li> </ul>
<b>6. Suman</b>	<b>Social Studies 5</b>	Hazardous Waste: Nature, Types, Common examples, Proper handling and management, Effects on humans/ nature.	<ul style="list-style-type: none"> <li>• Students explored the various products that we use in our daily lives that are actually quite dangerous when not disposed of properly, like batteries, gas cylinders, bleach, detergent and insect repellents.</li> </ul>
<b>7. Susmita</b>	<b>Mathematics 5/6/7</b>	Data Handling (refer <i>Data Handling</i> chapter)	<ul style="list-style-type: none"> <li>• Analyzed real data from the student surveys in Udaipur.</li> <li>• Students represented creatively data about <i>how many people use dustbins, what are the reasons for not using them, and problems faced by undisposed garbage.</i></li> </ul>



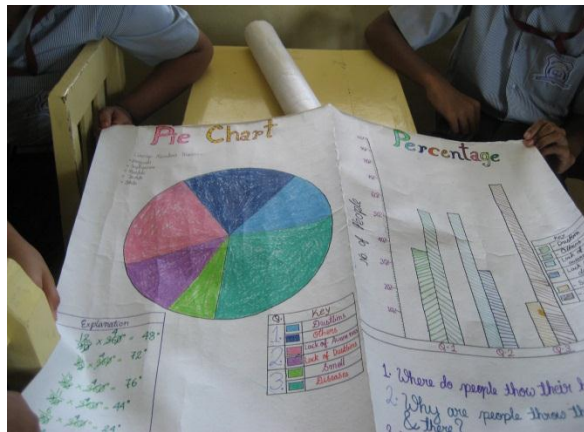
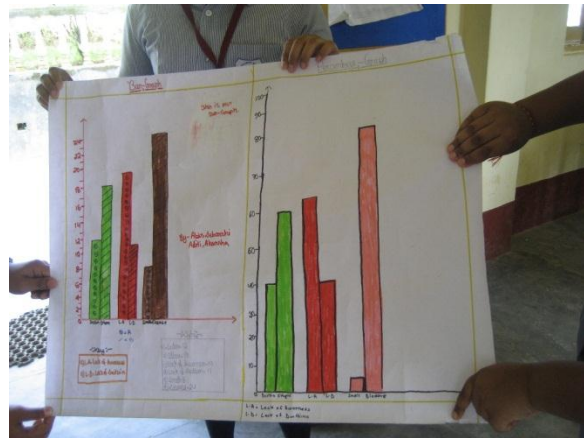
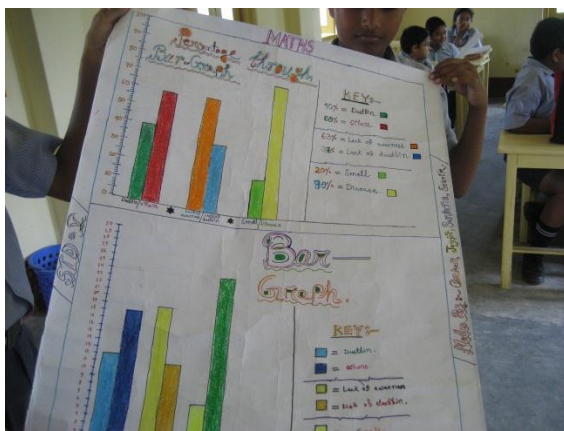
<p><b>8. Vinod</b></p> <p style="text-align: center;">English 6/7</p>	<p>Formal letters: Structure, essentials, practical exercises in writing to authorities regarding community problems.</p>	<ul style="list-style-type: none"> <li>• Students of Classes 6 &amp; 7 learned about the elements of a formal letter, and used innovative methods to present their ideas in a constructive manner.</li> <li>• After watching films and going through thought-organizing exercises, students were ready to give it a shot.</li> <li>• Students wrote mock letters to government authorities, municipal figures, dignitaries, school administration etc. about a range of issues ranging from water pollution to corruption.</li> <li>• Writing a formal letter may be one of the solutions, and is an essential life skill to develop at such a young age.</li> </ul>
<p><b>9. Adhir</b></p> <p style="text-align: center;">English 5</p>	<p>Using multiple mediums to imbibe the Importance of recycling and preserving the environment</p>	<ul style="list-style-type: none"> <li>• Students prepared plays, songs, imaginative stories, and animated presentations on different aspects of recycling, reducing pollution, and preserving our environment.</li> <li>• They worked in groups, were given the freedom to use whichever medium they liked best, and performed their work on the final day.</li> </ul>
<p><b>10. Swarup</b></p> <p style="text-align: center;">Social Studies 3</p>	<p>Connected his chapter on <i>Physical features of India</i> to <b>Soil, water and land pollution from garbage.</b></p>	<ul style="list-style-type: none"> <li>• Students watched films, studied articles and had great group discussions on different types of pollution from around the world.</li> <li>• They connected what they were seeing and learning at each stage, to the situation here in Udaipur.</li> <li>• They even went on a field trip with their teachers to water bodies of Udaipur like Gomati, Jagannath Digi and Amar Sagar, and were shocked to see the levels of water pollution and dumping of mismanaged waste.</li> </ul>

**Observations and Reflections:** Integration helped the students to understand more about the project topic and increased participation level of the students. The innovation in the integration classes, and also the heavy involvement of the coordinators with the teachers, ensured that these classes were really **multi-modal and exciting for the students**. This phase set a benchmark for all the other teachers and classes in the school, showing how optimal planning, execution and assessment should happen.

## Data Handling

Teachers of Mathematics for classes 3, 4, 5, 6 and 7 wanted to come together and integrate their subject with the on-going service project. Many ideas came up like planning a task related to composting, doing a paper recycling drive in the school that tests students measurement skills, and data handling. Considering we had concrete data from all the student surveys in Udaipur town, we thought it would make sense for the students to learn how to analyse real-world statistics and represent them in creative forms. Students as young as Class 3 students were exposed to real world data of up to 180 variables, and independently prepared graphs, pie charts, calculated percentages, and made scholarly conclusions.

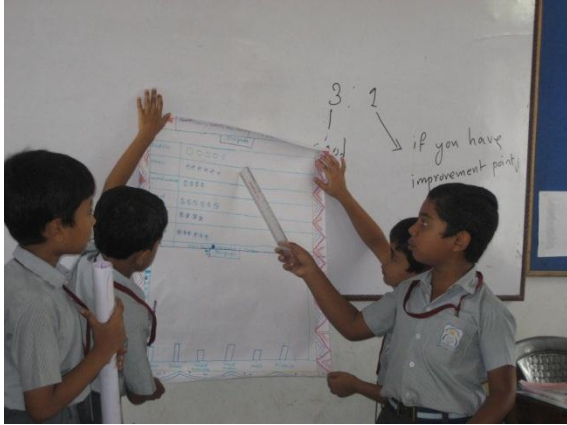
For these task students were divided into groups. Groups were told to present our data to the class through – Picto graph, pie chart, bar graph and Venn diagram. Learning math and diagram through real data was fun for us. Math subject has never been so easy the ways our teachers have guided us. We have learned how to manage large and real data by analysing and presenting it to the class by graphical presentation.



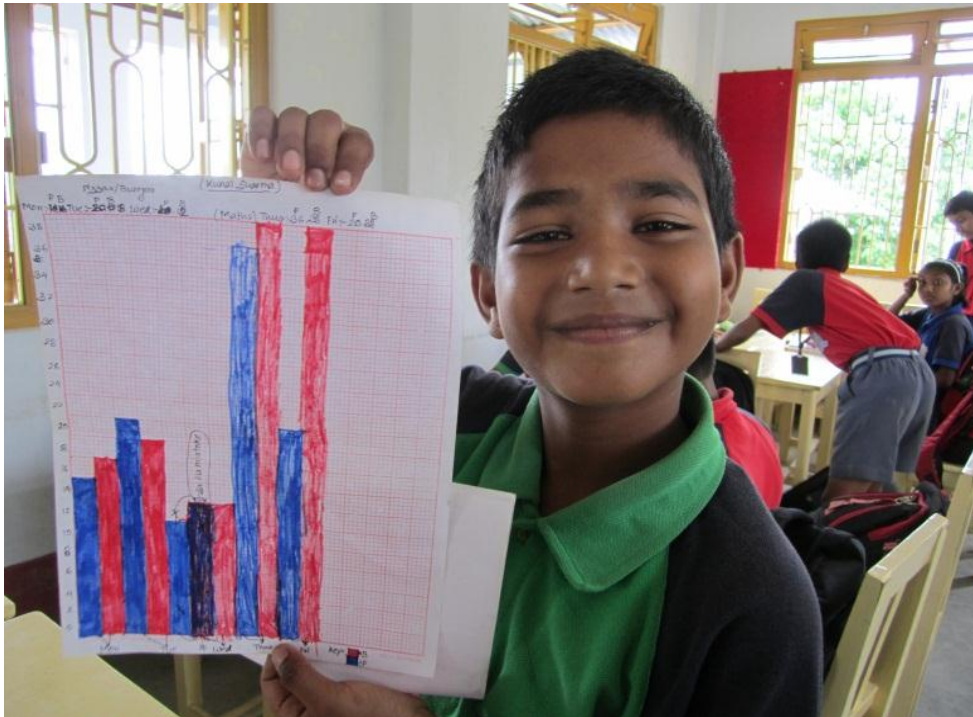
### Observations and Reflections:

- How to handle real data from their surveys, and make insights into the predicaments of Udaipur town. For example, “more than 50% of people don’t use dustbins and litter the surroundings, and yet complain about foul smell and diseases from excessive garbage.”
- Representing data through different mediums like Venn diagrams, Pie charts, Bar Graphs, Pictographs and Percentage charts.
- Dividing tasks and responsibility among the team members, and working in groups
- **Presenting** their work in a manner that all their peers can understand what they are trying to convey through the graphs/ charts.
- **Reflecting** on their insights and using this data constructively to work on some focused solutions.

Uday (class 3) is explaining PICTO GRAPH to the class



Yesmin and Anirudha showing group work on PICTO and BAR Graph



Kunal (Class 4) is showing class work on Bar Graph

## Composting

Composting is the best method of decomposing biodegradable waste, and through which we can make a very organic fertilizer. Class 6 and 7 planned to do composting project in school premises. The plan was made to make two types of composting, i.e. Piles and pit composting. The classes has identified the places, plan and requested students to bring waste from home and school staff also provided materials for composting project. Three groups of 10 students, were made for each class for the project and teachers were there to help students in executing the project. During the discussion following topics were brought out:

- Making of Groups (3 groups)
- Dates – Thursday to Saturday
- Group rules for composting project
- Identifying spots (within school premises)
- Size of pit (3x3ft), depth 3 ft.
- Number of groups – 3
- Sufficient materials like, spade, sabal, basket for soil.
- Documentation – Written observation, Camera and Video.

### Composting Procedure:

- ❖ Coarse - 7 to 8 cm (Dry leaves, hey, g. Leaves, twigs, vegetable and fruit waste)
- ❖ Soil – 2 to 3 cm (mixed with cow dung)
- ❖ Coarse -20 to 25 cm (Dry leaves, hey, g. Leaves, twigs, vegetable and fruit waste)
- ❖ Soil – 5 to 10 cm (mixed with cow dung)
- ❖ Coarse - 5 to 6 cm (Dry leaves, hey, g. Leaves, twigs, vegetable and fruit waste)
- ❖ At the end Earth Worms – 10 to 15 earth warms
- ❖ Duration of forming into organic manure is 6 to 8 weeks

**Observations and Reflections:** It was observed that interest level of the students for composting project was very high. We noticed that students who usually do not participate in the class activities in different subjects took lead role in making pit. It was good to introduce composting project, which involved everyone and took ownership of the learning. It was a good way to link classroom study of SLP project with some real activity. It has enhanced ownership levels of the students. Students practiced different skills – coordinating while working, how to measure, how to use spade, solution and how arrange the task one by one, collecting other materials, appreciating those who are doing similar kind to work for their livelihood.







(Titas and Soumya is helping to collect hay for composting)





## Video conference

It was an opportunity for the students of BSS to interact with the students of an international school from Hyderabad. There were two days of video conference at school with Oakridge International School, Hyderabad. Two classes and 5 students from each class were selected for the video conference, i.e. class 6 and 7. There was a structured format made for the conference and both the documents were shared with schools. The structure was – ***the problem, what we know, solution*** and ***what we have done so far***.

There were mediators from both sides, and Anuj Iyer (Service Project Coach) was facilitating the students to have a discussion from BSS' side. The schools' students from such different socio-cultural backgrounds had a chance to participate in a structured and scholarly discussion on the topic '**Pollution from unmanaged waste**'. They learned about situation of each other and shared the problems that they are currently facing and shared how they intended to solve these problems.

From Oakridge school shared some of the activities undertaken by the students –

- Campaign on littering in Hyderabad city.
- Hoarding in an around Hyderabad
- Contacting different agencies and nearby schools
- Having a group named 'Group Ranger' in the school to work on environment related issues.

**Observations and Reflections:** It was a wonderful video conference and our students got exposure to interact with the students of International school. There number of learning opportunity and good things came out of the conference.

- It was observed that students of both schools were well informed about garbage and waste.
- Students of BSS were quite well informed about different situations of Udaipur
- It was felt that students need to work on their cognitive English skills.
- Structuring of the content helped the students to focus on the topic during interaction.



Photos of Video Conference



## Field Trip

This was an extension of SST class on topic 'India and its Physical Features' by class 3 students. Academic integration was made by linking how physical features of the world get affected due climate change and extend how climate is changing due to mismanagement of waste (natural link with SLP topic).

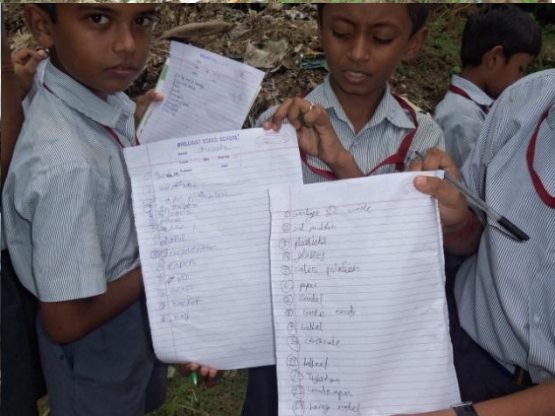
The class was introduced the topic on waste through number of activities - Group activity, study of articles, video and pair work. The classroom activities covered the points like water, soil and air pollution due to waste. **In order to extend the learning of the class and relate the problem with Udaipur society, the class planned for a field trip.** The trip was made to mainly two places – waste affecting water and soil. After making trip the class assess the learning and understanding of the students by reflecting on 'Cause and Effect'.

The students were divided into 4 groups and 4 teachers accompanied the students (Swarup, Jaya, Santana and Biswajit). Each group consisted of 8 to 9 students and lead by one teacher. Total 30 students participated for the field Trip (class 3 students). During the visit students were asked to take note of important points they observed during the visit. The class teacher met with Dept. Coordinators and Office for approval and transportation.

Students went to Futamati, Maharani (near Navodhaya Vidhalaya) to see the waste dumping spot of Udaipur town and how it is affecting soil of that area. Students were so excited about the project that they started look for a dumping spot on the way to Maharani. They saw dumps and no dustbins on the way. Next spot students visited was west bank of Jaganath Dighi – how people dumping garbage in water body and in dustbin. It was observed that students could see that most of the wastes are dumped outside the dustbin and some in water. The last thing was to see how town wastes are thrown in the Gomati River (the only water source for Udaipur town). **Students felt very sad to see that people are polluting the only water source of Udaipur town.** How inhabitants of Udaipur are consuming the polluted water in our daily household activities –drinking, cooking, bathing, washing and other purposes. Students felt need of doing something to change the conditions and make aware the people of Udaipur to be more conscious and care the most essential part of our life, i.e. water.

**Observations and Reflections:** It was a fruitful educational trip and directly related to Social Studies subject and project topic. Students could relate the problems studied in the class with Udaipur and its condition. It was observed that students could analyse the impact of waste polluting soil and water bodies. It was great learning for teachers too. We realised that class learning can deepen more when such kind of meaningful educational trips are made. Maybe we could have taken more time to interact with people who directly causing such problems or meeting with department responsible for cleaning or awareness. Similar kind of teaching trips or any of such activities can be made to extended learning and help the students to related problems in real life.

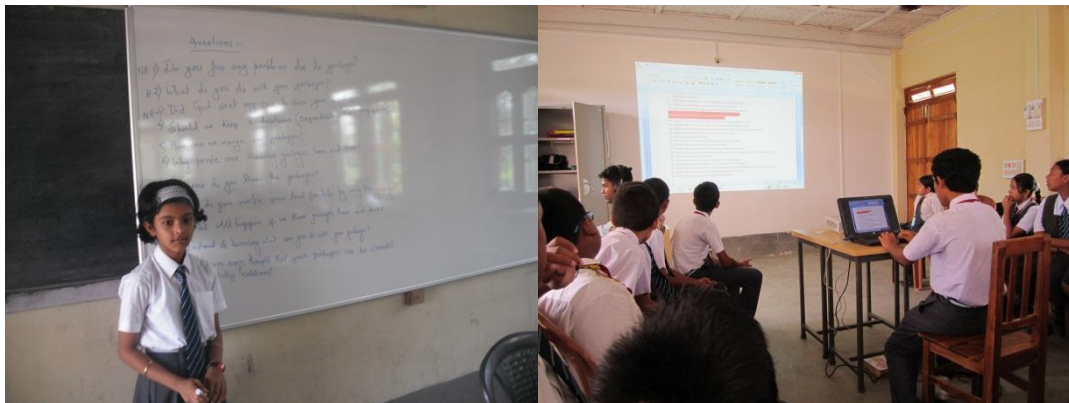




## Question Review

After making bank of questions through group conference, students went through all the questions all over again **to see whether the questions are related to the topic or helping the students enrich their learning.**

Different classes made different method of reviewing questions, like – Whole class discussion, group discussion – group sharing view on a question were common for all the SLP classes. Important to mention that all the questions were finalised only after discussion and vote was taken in the class. The nature of reviewing questions were: leader would ask one of students different to read the questions and groups will be given few minutes to discuss themselves and decide whether they like to keep the question or not. The group will give sufficient reason to keep, remove or modifying it. Leader will ask one by one and seek everyone opinion and majority's opinion will prevail. If there are differences of opinions among the groups or students the leader will take vote on the question. In the end, all the classes cut down their lists and only kept those questions that they thought would really equip them with the knowledge to effectively solve the problem of unmanaged garbage.



**Observations and Reflections:** Reviewing questions gave opportunity to the students to reflect their work and exercise their self-critique. It also helped them to identify the questions that are directly related to the project topic. It helped them to build their sentence construction skills, assimilation of questions, grammar and tone. Debating and critical analysis of each question was done in reviewing question.



## Research (Finding Answers)

After finalising questions student in the groups went to lab for researching answers in the web. The objective of the research is to study the secondary data and students develop skills like – Navigation, citation, organising information, comprehension, compilation and paraphrasing information.

For researching the students each class were divided in to 10 groups and questions were also divided among the groups for in-depth research. Teacher helped the groups by providing guiding questions, sources and told to use key words to find relevant information from the website. Groups have organised their research work by making group folder and two word files – one for *information* and other for *sources*. After finding the answers student sat in the group and read all the information and compiled and paraphrased into our own words. Research activity was one most joyful activity for students. During research, teachers also assessed the students' work through rubrics.



**Observations and Reflections:** It has helped them to develop many skills like *managing couple of tabs at a time, browsing reliable sites, using keys words, reading the web documents, copy and saving in document files, giving sources, typing, ability to use MS Word with ease and filtering answers.*



## Presentation

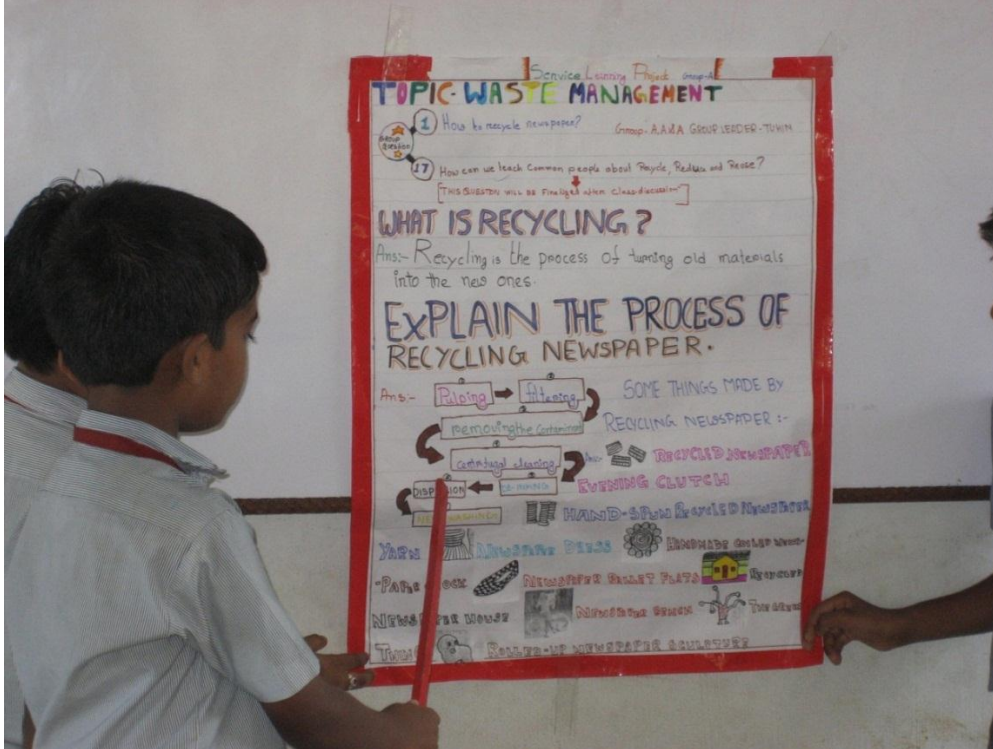
Next phase after researching is the presentation to research work by the students. Higher classes (5-7) presented their research by giving Power-point Presentation and lower classes (3 and 4) gave presentation through paper charts. The objective of the presentation is to give opportunity to all the students to learn over all that has been prepared by the students before research.

Before presentation, groups discussed different aspects of a presentation and the students acted as teachers' assistants. It has helped the students contextually to make meaningful presentation. Assessment of Rubric on presentation was shared with the students and discussed. During presentation groups assessed their peers along with teacher. The following rubric was shared for assessing peers:

CATEGORY	Excellent	Good	Satisfactory	Needs Improvement
<b>Content – Accuracy</b>	All content throughout the presentation is accurate. There are no factual errors.	Most of the content is accurate but there is one piece of information that seems inaccurate.	The content is generally accurate, but one piece of information is clearly inaccurate.	Content confusing or contains more than one factual error.
<b>Organising of Information</b>	Information is organized in a clear, logical way. It is easy to anticipate the next slide.	Most information is organized in a clear, logical way. One slide or piece of information seems out of place.	Some information is logically sequenced. An occasional slide or piece of information seems out of place.	There is no clear plan for the organization of information.
<b>Text – Font Choice &amp; Formatting</b>	Font formats (color, bold, italic) have been carefully planned to enhance readability and content.	Font formats have been carefully planned to enhance readability.	Font formatting has been carefully planned to complement the content. It may be a little hard to read.	Font formatting makes it very difficult to read the material.
<b>Cooperation</b>	Group shares tasks and all performed responsibly all of the time.	Group shares tasks and performed responsibly most of the time.	Group shares tasks and performs responsibly some of the time.	Group often is not effective in sharing tasks and/or sharing responsibility.
<b>Presentation</b>	Members spoke at a good rate, volume and with good grammar. They maintained eye-contact while using, but not reading their notes.	Members spoke a little faster or slower than necessary, or too quietly or loudly. They used acceptable grammar. They maintained eye-contact, but relied too much on their notes.	Members spoke at a good rate and volume, but used poor grammar. They relied heavily on their notes.	Members demonstrated having paid little attention to rate, volume or grammar. They read nearly word for word from notes.

**Grades:** a) Excellent – 4      b) Good – 3      c) Satisfactory – 2      d) Needs Improvement – 1

**Source:** <http://discover.education.purdue.edu>



**Observations and Reflections:** Preparing presentation was one of the most fun time students spent during the SLP project. Presentation motivated students to share what they have done in research phase. Students used MS Power-point with ease. They learned how to design slide, insert contents, give effects, colours and images and structuring their answer in logical order. Also, by assessing each other and working with professional standards, students had an exercise in maturity and critical thinking through this phase too.

## Study of Primary and Secondary Data

For studying secondary data students were divided in to small (4-5) groups. The objective is to learn researched documents of the class. Printed copies of researched documents and charts were provided to the groups. During study of secondary data students were asked to take note and underline the important points during study.

It helped them to learn the researched work of the other groups and get overall view on research work of the class. Also students of higher classes helped students of lower classes in studying research documents.



Krishanu is helping Kastav's group

Nikita is helping Ashmita's group

**Observations and reflections:** Students got the opportunity to study secondary data. Formal assessment was conducted in classes 3, 6 and 7. Working in mixed age groups, students of older classes had an exercise in leadership and mentoring, and students of younger classes got an opportunity to learn from their seniors too. We found that students of younger classes are more receptive to the guidance from their seniors, than their teachers even. Also, it was a great structure for the students to get well versed with their own research, and also the work of the other groups.



Also, students invited and informed TV channels and print media to take maximum coverage on above 4 activities.

***Observations and Reflections:***

Students were familiarized with types of solutions, and also the criteria for choosing solutions. This helped them to not just suggest random solutions to the problem at hand, but rather **structure their thoughts** and approach all addressable aspects of solving it. This exercise helped them to narrow down their thoughts, find similar patterns among different age groups, and think about what would be most effective from a societal point of view.



## Planning

After finalising the project solutions students of different classes came together and formed mixed groups for executing solutions identified by different classes. Groups were formed based on the following areas:

- 1) Procession – 9 groups
- 2) Clean up drive – 3 groups
- 3) Letter Writing – 1 group
- 4) Composting pit – 9 groups

- 1) **Procession:** The theme for the procession is 3 R's and Composting. Total 150 students have participated in the procession. In order to make procession meaningful students were formed into 9 groups to work on the themes of the project and a leader was appointed for each group. These groups are – Recycle, Reuse, Reduce, Composting, Preparing Slogans, Banners, Charts and Props for Tableau. One group was also formed to look after the physical arrangement of the procession. School also planned to hire 4 trucks, 3 school buses and 2 vans for the procession.
- 2) **Clean-up Drive:** It is the second action plan of the project solution. Total 90 students from BSS, Staffs of Udaipur Nagar Panchayat, Assam Rifle Soldiers, BSF Jawans and different school students. At first a group went and met Nagar Panchayat chairman Mr. Das and got confirmation clean-up drive on 11<sup>th</sup> October 2012 at 9 a.m. in the next stage students visited camps of Assam Rifles and BSF Jawans and got confirmation from both camps. Total 20 soldiers will join hand with students of the BSS.

Meeting Nagar Panchayat Chairman Mr. Das



Meeting Deputy Commandant of B.S.F



Meeting Deputy Commandant of Assam Rifles

- 3) **Letter Writing:** A group was formed for writing letters different Govt. agencies. It was a mixed group consisting of students from classes 3, 4, 5, 6 and 7. They have planned in the following manner:

<b>Governor, Chief Minister and District Magistrate:</b> The objective of the letter is to provide added infrastructure, funds, appropriate dumping area to all the Nagar Panchayats in Tripura and also to engage the Tripura State Pollution Control Board towards solving the problem.
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<b>Nagar Panchayat:</b> To impose fines for littering, ban plastic bags in shops, encourage all shopkeepers to keep two dustbins, etc.
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<b>Gram Pradhan:</b> To spread awareness to people in our area to use dustbins, not throw plastic, encourage them to compost their biodegradable waste.
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- 4) **Composting Pit:** Students of class 4 and 5 have planned to make composting pits in Gokulpur village. Gram Pradhan was contacted and confirmation was taken to make 9 pits for villagers. Students mainly worked in 2 areas – one making pit for villagers and educating them to use the pit form bio-composting.

## AWARENESS PROCESSION



Students of class 3 are in the procession



Students of class 5 marching through Udaipur New Town Road





Class 3 students are preparing for the procession



Students of class 7 in the truck





Class 5 students with 'Reuse' truck during procession

## CLEAN-UP DRIVE



Pratiksha, Ankita, Ankur, Hriturima and Dibakar cleaning the Udaipur Central Road





Students cleaning streets of Udaipur Town



Sanchari, Aneswa and Debraj picking litters

## COMPOSTING



(Anirban is making pit for villagers)



(Students and Anuj is measuring pit)



(Sibtanu is dumping coarse in the pit)

## Observations and reflection: Learning through service

- Divided in teams, students handled all the organizational, logistical, content-related and visual aspects of the procession through the town. It was an opportunity for them to develop real world management skills, problem solving skills, perform the said tasks within a limited time period and cope with an immense amount of responsibility.
- By “getting their hands dirty”, *students saw what it takes to educate the people on a massive platform, actually work on the problem themselves and also to communicate and collaborate with various social and political authorities.*
- All the staffs of the school and students of different ages got an opportunity to devote all their focus and energy to the achievement of a **common goal**, and it brought about a sense of school unity.
- *We managed to get the attention of each and every resident in Udaipur through our procession, and the impact we set out to achieve in terms of educating the masses was completely fulfilled.*
- The students’ efforts in the clean-up drive had a profound impact on all the shopkeepers and bystanders present, and they all lent a helping hand. *A lot of shop owners and citizens were moved by how such young students were cleaning their garbage for them and teaching them to be considerate to their environment.*
- The letters the students drafted have been written from a very mature and scholarly perspective, and *practically implementable solutions have been suggested to all the concerned authorities with contextual relevance to their respective scopes of work and the Constitutional provisions.*
- *The students worked hand-in-hand with different villagers in the East Dhajanagar and Gokulpur areas to set up effective and fully functional composting pits in their backyards, so they can all put their biodegradable waste to constructive use.*
- All the in-class studying, research and investigation that all the classes have engaged in for the last 6 months was really crucial to our implementation of such quality solutions, and the *students were so well versed with their theory and knowledge of international best practices all through the **Action phase**.*
- The students of Brilliant Stars School saw in themselves the potential that each one of them has to improve society. Only they have to use their passion and sense of social responsibility in a structured and constructive manner. We are sure that *this is only another stepping stone to a lot more powerful and profoundly lasting impacts that our students will mark in society in the many years to come.*



## Exhibition

The objective of the exhibition was to display journey of the students through different phases of the current project, inaugurating Project Booklet of the current project and dustbins provided by Lions Club. In order to make a grand and successful exhibition, the school invited the Honourable Minister for Science and Technology, DM, Chairman of the Nagar Panchayat, Principals of different schools and Project Manager of the OTPC to name a few. Students were divided into mixed groups to plan and prepare for the exhibition. The stages of the projects were broadly divided into 5 stations and date for exhibition was fixed for 15<sup>th</sup> October 2012. The stations are:

- ❖ Identifying Problem
- ❖ Understanding Problem
- ❖ Researching Solutions
- ❖ Planning
- ❖ Action

The exhibition was held as per plan, and graced by the presence of the Minister Mr. Joygovind Debroy, other distinguished guests and parents. Total 150 people attended the exhibition including students. The Minister also inaugurated this SLP booklet and the dustbins donated by Lions Club. Guests attended our brief cultural programme and visited different stations to observe the students' work. Students were assisted by teachers of the secondary, primary and pre-primary.

The Hon. Minister expressed his happiness and repeatedly acknowledged the quality work of the students. He promised us his support for similar kind of projects and for development of school in the future. Overall students of the BSS organised a wonderful exhibition.

**Observations and Reflections:** It was pleasing to see the ownership level of the students and coordination among different age groups yet again. Teacher-student relationships become more close and meaningful in executing the task. Other non SLP teachers, pre-primary teachers and admin staff extended full support for organising successful exhibition. It was good to get the support of NGO like Lions club, and local businessmen in publishing booklets. Whole school was united in achieving successful project exhibition. However there were couple of areas we found and can be worked on in future projects:

- ❖ Sufficient preparation time (we got only 2 days)
- ❖ Checking the content of our banners, charts, etc. in a better manner
- ❖ Avoid repetitive information in different stations
- ❖ Beautification and decoration of the campus (mainly main gate)
- ❖ Summarising information and explaining rather than reading (some students were able to arrange and compile their thoughts, but the younger students find it difficult)



Science and Technology Minister Mr. Joygovinda Debroy addressing at BSS on SLP Exhibition



Minister is visiting different stations of the exhibition



Minister is inaugurating dustbins donated by the Lions club



Ujjal is explaining types of project solutions to Minister



Ex-Principal of Ramesh School Dr. H. K Acharjee inaugurating exhibition

## Reflection

At the end of exhibition students sat down to reflect on the project. The objective of reflection is to see the learning, experience and the skills they have developed from the project. It is to clearly identify the strengths and areas of improvement of the students, teachers and the project framework as well. Reflections during this project were done in 3 ways – *On going, stage-wise* and *end of project*. It helps to evaluate how much we have achieved and how far we need to work on the goal. It also gives room to constantly evolve no matter how much we achieve our goals as there is always room for improvement.

A self-reflection form was provided to the students and teachers to fill up their experience of the project. The form addresses questions like – most important thing you learned, phase that you liked most and least, skills that you have learned and practiced and what can be better in future projects.

Senior Learning Programme	
Garbage/ Waste Management Self-Reflection Form	
<b>Project Reflection</b> (For Class 8 and 7) (Consider in your mind on different phases of the current project and share your learning and suggestions)	
Student Name:	Apekshita Baidya
Date:	16-10-2019
<b>ABOUT YOURSELF</b>	
Q. What is the most important thing you learned in this project?	The most thing that I learnt is the group conference. It results in a successful output. By using the group conference I could get many our class get many questions.
Q. What part of the project did you do your best work?	For me I did my best work in the group conference.
Q. Mention some of the skills you have learned and practiced in this project.	I have learnt about the citation which I have practiced too during ppt. Making keywords of the questions and finding answers was another technique that I have learnt.
Q. Mention some of the values that you have practiced in this project.	There was unity during the project. All worked hard & and there was a competition among all.
Q. Which part of the project do you think you could have worked better?	During the presentation our truck was very clumsy and not in an order. So I could have worked better to make my truck much nicer to look.
Q. How did your SLP teacher support you in achieving your goal?	our SLP teacher worked a lot for our class towards the field of betterment. He gave us more than and also gave us chance to share our idea.
<b>ABOUT PROJECT</b>	
Q. What was the most enjoyable part of this project? Why?	For me the most enjoyable part was the procession. Because all the students who started to sing slogans worked well and showed them quite nicely. All the audience were very happy with us.
Q. What was the least enjoyable part of this project? Why?	For me the least enjoyable part was the making questions with groups because always some not participating well and there was not much. He could bring out more and more problems and go much deeper into each of them and then solve the main project.

**Observation and Reflections:** Using structured format for end of project was meaningful and gave us some insightful points. These helped the teachers to understand the skills students developed from the project – **IT skills, cooperation, critical thinking, problem solving, collaboration, leadership, social skills, self-monitoring, ethical, logistical, planning and implementation**. Feedback from staff reflection will help structure the upcoming project, in areas like-lesson planning, managing time, daily role of the coordinator and the framework. Feedback of the students and teachers gave me additional perspective to work on future projects.

Reflection could have been done before exhibition. This would have given the students a chance to evaluate their work and meaningful learning, and outcome of the evaluation could have been exhibited to the dignitaries and guests.

## **Conclusion:**

We have hosted an exhibition on the 15<sup>th</sup> of October in our school campus to celebrate the various achievements of this project on 'Garbage & Waste Management'. Various dignitaries attended the programme, among them Minister for Science & Technology Mr. Joygobinda Debroy, ex-principal of Ramesh School, chairman and secretary of the lions club of Udaipur.

After the exhibition students and teachers reflected on overall project. They have identified the highlights, shortcomings and learning points for the future projects. It was done by using self-reflection form.

Students will be following up on the solutions implemented, to gauge whether they have had a sustainable impact on society or not. For example, students will go on a field trip of the town after a month to see if shopkeepers are using dustbins, the streets are cleaner, and people are more aware of waste management and environmental conservation.

We are confident that another relevant and powerful topic will be chosen for the next project, and the team at BSS will work as hard if not more towards the achievement of a sustainable impact on society through our students' efforts.

We are thankful to all the parents, staffs, administration and Managing Committee of our school for cooperating with us at all times. We are also grateful for the support of Mr. Anuj Iyer, who came to help us from Mumbai and spent an extensive period of time working with Mr. Biswajit Sinha .

We would also like give special thanks to the Nagar Panchayat, Mr. Das (the chairman), Udaipur Police, Traffic Department, BSF, Assam Rifles, the owners of the trucks used in the procession, the Gram Pradhan of Gokulpur, Oakridge International School, and the various citizens and villagers in Udaipur and Dhajanagar/ Gokulpur respectively.

Also, Laxmi Narayan Jewellers, Monica Electronics and Abhinandan Electronics supported us in our efforts to publish the inaugural edition of our SLP booklet and we are ever-grateful.

Last but not least, we would like to thank Mr. Siamack Zahedi and Mrs. Radhika Gonsalves Zahedi for constantly mentoring us and providing us with crucial suggestions and perspective. We are also especially thankful to our loving founders, Mrs. Zena Sorabjee and Mr. Nand Khemani for guiding and supporting us, being present at our SLP gathering in September, and inspiring us to achieve higher and higher goals with passing time. Also, we would like to thank Mr. Darshan Lal for his insightful suggestions and feedback before the solutions stage of our project.