



PROJECT BRIGHTER WORLD LAB ANNUAL REPORT 2019-20





EXECUTIVE SUMMARY

One cannot underestimate the scope of science in today's world. Science is the backbone of human existence. The practical effects of science can be seen in motion everywhere. From path-breaking discoveries in atomic science to discovery of newer vaccines in life science, to technological advancements in the field of communication, transportation, and even weather prediction, science has left no aspect of humans untouched.

With scientific and technological advancement, the school curriculum needs to be adapted to suit the challenging needs of the world. STEM Education or Science, Technology, Engineering, and Mathematics education is gaining momentum and popularity in the schools of the country. It thus becomes very important to cater to the advancement of the world by incorporating the STEM education in the current curriculum of the schools to expose the children belonging to the low socio-economic background to give them an experience of science education in a conducive environment.

It is very important to instill science education at an early age in the children so that the spark and curiosity are encouraged in them. Since this is the phase where the minds are the most curious, giving them exposure at the right time can reap better benefits.

The Government has made considerable efforts at the National and the State level to ensure that science education becomes an important aspect of the curriculum in all the schools and efforts have been made to ensure that a conducive learning environment is created for the same.

The Government grants scholarships sponsor science camps which not only exhibit the various disciplines of science and technology but also impart the necessary training required to teach science and technology in the schools through effective pedagogy.

There is a wide gap between opportunities created in the areas of Science and Technology jobs and the students taking that up as a discipline. The current science curriculum creates followers of science but not innovators of science and over the years STEM education has been trying to motivate students to take up science to foster innovation in the classrooms and their careers.

Schools across the country are working towards creating smart classrooms for their students so that students can explore beyond the textbooks and generate interest in the world of science and technology. The Government is looking to help schools to build necessary infrastructure so that more engaging learning can take place.



There is a huge lack of infrastructure for science education in the low income and mediocre schools due to which the students can seldom realize the potential science and technology has to offer to them. It thus becomes imperative to invest in creating such infrastructures for the children.

Out of the total **1,17,257** secondary schools in the country, **49,278 (42.03%)** schools are having a facility of Science laboratory. Out of **49,278** schools, having a Science laboratory out of the **70.64%** of schools are having adequate Science laboratory.

Out of **56,983** higher secondary schools with secondary stage, **33,999 (59.67%)** are having Science laboratory and out of these schools, **57.14%** are having adequate facilities (NCERT, 2009).

Out of the total **1,17,257** secondary schools in the country, **21,541 (18.37%)** schools are having a facility of Mathematics laboratory and among these schools, only **38.29%** of schools have adequate Mathematics laboratory. **13,766 (24.16%)** schools, out of **56,983** higher secondary schools having a secondary stage, have a Mathematics laboratory. **44.84%** of these schools having a Mathematics laboratory with an adequate facility.

After so many efforts, still, many schools are missing basic infrastructure for promoting science education which does not let the children get an opportunity to study and experience the surreal world of science and technology.



Science education in India is faced with three practical challenges today. The first is the most basic problem that has persisted and resisted a solution since Independence. This is our inability to provide schools with labs and equipment to be used while teaching science.

Science is knowledge about the material, natural world. It is knowledge produced from systematic observation, measurement, experimentation, exploration, and speculation and theorization about natural objects, their properties, and their interactions.

Whether the topic of forces in Physics or the solubility of substances in water from Chemistry or germination in Biology, the science curriculum directs attention to the material world, to things and processes in it, about which it would like children to learn-to notice, name and think about things based on concepts and theories that characterize these disciplinary approaches.

However, this material world is conspicuously absent in the Indian science classroom and the school.

The science classes are no different from history or geography or language. They are also taught by teachers from textbooks. The textbooks talk about things, experiments, and processes and show pictures.



They often take the route of not only describing the experiment but also telling children what they will observe and what they should conclude-an implicit acceptance by those designing the textbooks that children will not get to do or see the things that are to be learned about.

While textbook learning is more passive, labs can ensure active and interactive learning which can arouse the curiosity of the children towards science education and motivate the children to take up science as a discipline.

Brighter World Lab (BWL) project was a way to reinforce science education in the schools so that children realize that science is beyond textbooks and the world beyond textbooks is real and full of surprises.





ANAND SRINIVASAN

Managing Director-Covestro (India) Private Limited

“Laboratories are considered to be significant and an essential part of teaching Science. Laboratories ensure that the students actively engage into hands-on experience of doing experiments, thus increasing the level of retention of their learning in the long run. This not only further develops their interest in learning but also offers better opportunities for learning.

The ‘Make in India’ campaign by Honorable Prime Minister Shri. Narendra Modi has put a lot of pressure on the manufacturing sector of the Indian industries and more so, on the academic institutions specifically to impart science and technology education in order to produce skilled manpower. This largely lays emphasis on creation of science and technology-based facilities in the schools so that more and more children take up STEM education and enter the workforce as skilled and trained personnel in the field of science.

The vision of Covestro is “To make the world a brighter place” and to live-up to this vision, and that of the country at large, Covestro aims to transform school learning through establishment of ‘Brighter World Labs’ so that the teachers and the students together experience the world of science and are motivated to take the discipline up in the near future in order to meet the parallel needs of the nation.

Each effort of creating a Brighter World Lab facility in the schools is to make science accessible and moreover fun to learn while making it more interesting, engaging and largely innovative.”



CHINTAN JOSHI

Communication and CSR Head
Covestro (India) Private Limited

Corporate Social Responsibility has become a mandate by the Government and there are areas where Companies invest as a part of their CSR activities which range from rural development to sustainable agriculture to health initiatives to set up classroom facilities in the schools.

Basic research in CSR intervention revealed that there were many mediocre schools with a good number of children enrolled but not enough teaching and learning infrastructure to meet the learning demands of the children. With the country slowly moving towards the advancement of science and technology, the biggest challenge that is faced is that of meeting the growing demands of science and technology amongst the growing population.

Not forgetting the fact that a majority of the country's population still living in economically challenging situations, it is very important to equip the schools that they have access to, in order to ensure that the schools can keep at pace with the scientific and technological innovations in the times to come. Moreover, the inculcation of STEM education in the curricula in a holistic manner can ensure that they build a cadre of individuals who are employable and moreover developed scientifically and socially.

To meet these demands, Covestro collaborated with ARCH Development Foundation in order to intervene in the schools for the purpose of developing the labs for effective use. ARCH has a good rapport technique with the schools and the teachers which helped in the identification of the schools which required the facilities and when needs meet facilities, a lot of development can take place.

Through the establishment of the labs, the CSR intervention of Covestro is not only the creation of facilities but also ensures through multiple activities, that these facilities are maintained, utilized, and moreover utilized for the overall development of the schools, its teachers, students and the communities at large.



NISHANT SHAH

Director – ARCH Development Foundation

ARCH believes that the foundation of any development lies in education and thus the efforts to catalyze change are focused upon the schools at large. ARCH has been working with various schools across various states and through academic efforts tries to bring about change at the community level while at the same time making the school and other stakeholders associated with it, sustainable and independent towards their development.

In the year 2018-19, ARCH Foundation collaborated with Covestro India Pvt. Ltd to install Brighter World Labs in various schools of Greater Noida, Ankleshwar, Mumbai, and Cuddalore. The broad vision of Covestro is to create a Brighter World and ARCH Foundation through its efforts tries to broaden the horizons of communities towards change in the long run. Schools have the largest potential for nourishing young minds towards being vehicles for change and thus Project Brighter World Lab was conceived with a broader idea to instill the passion for science in the young minds and foster the curiosity so that the future of the schools and the communities at large can be changed for the good.

The idea was not only to set up a lab but also to focus on the roadmap to instill the importance of science education in the minds of the students, teachers, and most of all the parents of the children in school. It is very important to expose children to science at a young age as they can realize their competencies and potentials and work towards an academic future in the discipline.

Since the majority of the children in Indi belong to low-income schools with bare minimum infrastructure, it becomes all the more important to provide them with learning materials that can contribute to their overall well-being.

Project Brighter World Lab is a collective effort to realize that each child is unique and that uniqueness needs to be brought about and realized to have children that are ready to take on this competitive world.

SECTION 1 INTRODUCTION



ABOUT BRIGHTER WORLD LAB

Over the past few years, India's education system has undergone a magnitude of changes and the education system has tried to keep abreast with the latest advancements in the world of science and technology through its curriculum and practice.

The schooling has given away the traditional rote based learning systems which are fast becoming obsolete and are trying to impart an education that is knowledge-based and encompasses the real-world challenges which combine academic theories and real-world practices as well.

To keep pace with the fast-changing world and the ever-increasing demands of the education system, schools are now emphasizing the inclusive learning approach in education where they are devising interdisciplinary teaching and learning mechanisms to enhance the competitiveness of the students and the teachers alike.

The success of the schools in the coming years will be based on how much they make their students entrepreneurial ready and at the same time sensitizing them towards the needs of the ever-increasing industry and the society at large to prepare a cadre of individuals who can contribute to the best of their knowledge and capacities.

It is not an unknown fact that India is posed with various socio-economic challenges and to meet these challenges, we need to prepare human resources that have skills, capacities, and knowledge base that is committed to producing technological as well as developmental thinking in the years to come.

To meet these demands and challenges, what the schools require is a robust system of education that is sustainable in its terms while at the same time reaps positive outcomes.

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It is again not a lesser-known fact that there exists a socio-economic gap in the country and thus a large number of children are devoid of learning due to lack of infrastructural facilities.

This lack of infrastructure has the maximum negative impact on the learning of Science and Technology subjects in the schools. Schools that have ample infrastructure can give a different learning exposure to its students but the ones who do not have the facilities often lie behind.

STEM education, Science, Technology, Engineering, and Mathematics is quite essential to be imparted through the curriculum as these can largely help in meeting the technological and scientific advancement of the country.

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Over the last few years, STEM education has gained a lot of importance globally and schools are adopting these to make their students future-ready. India too has adopted the STEM culture in its education system as it is believed that this will help in creating positive attitudes for a developed nation at large.

To ensure that this vision of a developed India is reached and trickled down to the neediest population, ARCH Foundation in the year 2018-19 collaborated with Covestro India Pvt. Ltd. to make STEM education a reality in the low- and middle-income schools (Government/aided schools/trust run) in various cities like Greater Noida (Uttar Pradesh), Ankleshwar (Gujarat), Mumbai (Maharashtra) and Cuddalore (Tamilnadu).

The Brighter World Lab was initiated to make the schools self-sustainable in terms of being equipped with science equipment to motivate the children to be interested in science. The major objective of the science lab is not only to be instrumental in providing physical equipment but also to support activities that kindle interest amongst the children regarding the subject.

Some of the activities include science fairs where the children exhibit their work, science quiz to spark interest and interactive sessions where conversations take place revolving around science.

While establishing Science Lab is important, it is also important to channelize the interest of the children but more than that it is important to engage the teachers and the community members in the activities of science in the schools so that transparency of learning is established and the pedagogy of teaching science subjects is improvised at a manifold level.

Through the project Brighter World Lab, science education is exposed to the children belonging to the primary level of education so that the child can engage in exploratory and hands-on activities of science to acquire the basic cognitive skill and imaginative thinking.

Science at this stage must not be made to believe that its complex, rather through the BWL initiative, it is made to believe that science is fun and a composite and varied discipline that needs a lot of exploration. Thus, through the BWL project, Covestro tries to make science fun-loving, affordable, and above all easy to pursue.

ALIGNMENT WITH SDGs DISCUSSION

It is important to realize that the efforts at the grass-root are aligned with the goals of the nation at large. Education (SDG- 4) has been recognized as a standalone goal which largely reflects that a continuous high priority needs to be given to education in the development agenda.

It is important to have project goals that are parallel to the goals of the nation at large to create a just and equitable society that is self-sustainable.

The objectives of the Brighter World Lab collaborative project between ARCH and Covestro are largely trying to serve the purpose of the following SDG of the Nation:



SDG 4: Quality Education- Ensure Inclusive and Equitable Quality education and promote lifelong learning opportunities for all:



SDG 4 largely talks about quality education and within that, developing partnerships for quality education forms an important component. The BWL provides a platform for collaboration between various stakeholders for building partnerships and creating awareness regarding the importance of science as a subject in the minds of the students, teachers, and the community members at large.

SDG 5: Achieve Gender Equality and empower all women and girls:



Science is believed to be largely be dominated by men. While girls are required to be taking up subjects like teaching and arts, technology is dominated by men. SDG 5 seeks to empower women and girls not only in any one sphere but in all the spheres where education also is one of the important ones.

Brighter World Lab Project through its activities encourages boys and girls alike where they are motivated to engage in science and its allied activities. The SDG highlights that the cognitive learning objectives of this particular SDG, the role of education, enabling technology and legislation in empowering, and ensuring full participation of all genders.

SDG 10: Reduced Inequalities:

Education by and large ensures that no one is discriminated against. Despite that, there is a growing gap between the infrastructural landscape of private schools and those of the government-aided and municipal schools.

Due to the socio-economic fabric of the country and the unequal distribution of the students between the high-income and low-income schools, learning opportunities for the children is skewed. Educational inequality largely means the unequal distribution of academic resources that are vital to the learning of the children. The sustainable development goal talks of reduction in these inequalities by the promotion of infrastructure that is conducive to the academic and overall development of the children belonging to the low and middle-income population.

Through the BWL project, it is ensured that the labs are established in schools that are needy and have students who can benefit from the facility provided thus reducing the inequality of opportunities towards academic learning.



PROJECT OBJECTIVE AND STRATEGIC AREA

To support the objectives of the project, strategic focus areas were designed to ensure that science education in the school is imparted in a holistic manner, which was as follows:



IMPROVE ACCESS TO QUALITY EDUCATION

For a start, the basic focus of the lab is to improve the quality of access of science education for the students belonging to the underprivileged section of the society to align the project objectives with those of SDG- to promote equality in education.

Access has two key components, one is equity, which means that all children should have equal access to learning resources to be realized of their potential and aspiration and second is inclusion, which is a reduction of exclusion and unequal opportunities of learning within the education system. This, by and large, addresses and response to the diversity of learning needs among the students.

TEACHING PEDAGOGY TRAINING AND WORKSHOPS

Once access is ensured, it is of vital importance to enhance the capacity of the teachers to deliver the content to be taught in such a manner that it is made interesting and at the same time the level of retention is high.



PLATFORM TO EXHIBIT AND EXECUTE THROUGH EVENTS AND COMPETITION

The provision of a platform for learning proves to be a yardstick to measure the outcome of the activities undertaken under the BWL banner. Since there are customized modules, each platform can serve as an important evaluative platform to assess whether the modules were proven useful or not.



NETWORKING AND COLLABORATION

Projects as these are quite impactful and thus sustainability is an important aspect that needs to be taken care of. For the purpose, the basic strategy focus would be to collaborate with stakeholders who not only believe in the number of resources, but also on the quality and outcome of the same. This will ensure transparency, as well as make each stakeholder an equal partner in the establishment and implementation of the project activities.



SOCIAL ACCOUNTING AND AUDITING/IMPACT ASSESSMENT

To assess the impact of the program, Social Accounting and Auditing system are adopted to assess the social and ethical performance and impact of the program. It acts as a yardstick to be able to be transparent to the stakeholders.

The key stakeholders of the program include, apart from the students and teachers, the local community science Centre, the department of education that is instrumental in the administrative tasks to ensure program implementation smoothly.

Educational institutes prove to be important stakeholders as well as ensure the flow of manpower required for the functioning of the project and its activities.

Volunteers from Covestro help in the functioning of the activities and act as facilitators in ensuring the deliverables of the BWL activities are met.



SCIENCE CLUB

Science Clubs are an innovative way to foster curiosity and discussions amongst the students and the teachers in an interactive way through various experimental mediums. To ensure this, ARCH has developed a module on various Do-It-Yourself science-based experiments aligning it with the syllabus of the schools. The module includes various activities to be carried out with the students from 6th to 8th grade. Through these activities, the students get an out of class exposure where learning takes place through hands-on experiences and models while at the same time engaging in discussions that encourage the spirit of inquiry attitude amongst the students.

PHASES OF PROJECT IMPLEMENTATION

The phase of implementation took care of qualitative as well as quantitative areas. The Quantitative areas included the installation of the Brighter World Lab equipment in the identified classroom of the school. Care was taken to install new equipment in a workable condition which would, in turn, ignite the curiosity of the children to come and explore the lab.

The Qualitative aspect included workshops to educate the teachers and students to make them aware of the facility available at school and how to avail them. To spark more interest, competitions related to science were organized at an inter-school and intra-school level in order to get the children to talk and be involved in science as an interesting subject.

PROGRAM ACTIVITIES

RESEARCH AND ESTABLISHING THE LABS

- Selection of Schools based on pre-determined parameters
- An agreement with selected schools
- Setting-up. Mini Science Lab
- Verification of models by schools

TRAINING AND WORKSHOPS

- Orientation of key stakeholders of the program
- Teacher's training on Lab module
- Teacher's training on Science Club Activities
- Advocacy meetings with Government & organizations

EVENTS AND COMPETITIONS

- Eureka Science Quiz
- Poster Competition
- Debate Competition
- Eureka Mega Science Fair

PROJECT EVALUATION

- Developing Impact matrix using SAA framework
- Identifying stakeholders and developing tools
- Data Collection & Analysis
- Report Writing and Sharing

PHASE I: RESEARCH AND ESTABLISHMENT OF LABS

It takes a whole lot of research and visits to the schools to identify the schools which needed the Brighter World Lab facilities in the schools. To make the process easier and to identify the schools which were in dire need of the facility, the entire process was divided into various phases to arrive at the beneficiary schools.

The first phase of identifying the need was research where the school selection guidelines were established. The selection criteria for the schools included that the Schools should be up to 10th or 12th standard with minimum strength of 1000 students and must be located in and around the plant/office of Covestro India Ltd.

The school should be Government aided and not private in order to ensure that the neediest students are benefitted from the program. The schools must be able to take care of the facilities and keep them in working condition and must also take full ownership of the lab. To ensure ownership, the authorities of the school were taken in the loop of decision-making right from the start.

Once the schools were selected, beneficiary schools were shortlisted and required administrative tasks were undertaken.

PHASE II: TEACHERS' WORKSHOPS AND TRAINING PROGRAMS:

Teachers' workshop and training programs are important features towards identifying the existing skills of the teachers and polishing them and in turn providing them with newer skills to enhance the pedagogy. Such platforms prove to be a meeting point for the teachers of various schools where problems, challenges, and good practices of pedagogy are shared amongst the teachers.

The training focuses on building rapport with the teachers and equips them with the practical knowledge of using different equipment and models installed under the BWL. More than that, the training programs also act as a tool to identify areas of synergy where the schools can come together to make science interesting for the children and teachers alike.

PHASE III: EVENTS AND COMPETITION

SCIENCE QUIZ

Organization of Science Quiz at an inter-school and intra- school levels prove to be a push for the students and the teachers to look beyond the textbook curriculum and be engaged in learning that is not limited to the classroom alone.

Quizzes of such a genre are organized to rekindle the spirit of science amongst the curious minds of the children so that they can comprehend the theory into practice and widen their imagination. The aim of conducting a science quiz under the BWL project is to develop a spirit of partnership amongst the students while at the same time encouraging the students to develop a sense of search and enquiry.

Moreover, it exposes the students to a world outside the schools and brings the outside world into their own school which helps them to identify the variety of knowledge that people possess.

The science quiz is organized in three phases which include a screening of the student teams through a pen and paper round of multiple-choice questions on math, physics, biology, current events, and reasoning. The student teams screened through this level are eligible for the semi-final round, winning in which makes the team move to the final round of the quiz competition.

This is an activity that reinforces the students to actively participate and learn concepts of science. The winning teams are felicitated with medals while the participants are awarded a certificate of participation each. This is an important feature of the Brighter World Lab Project where the facility is not just established, but an entire process of availing the facility to its maximum potential is established as well.

EUREKA SCIENCE FEST POSTER, DEBATE AND EUREKA SCIENCE FAIR

Eureka Science Fest is a platform that culminates all the activities into a one-day event where the learning is exhibited to be shared amongst the participants of various schools. The event includes various activities like poster competition, debate competition, and science fair which give them an out-of-classroom learning experience and invigorates the spirit of exploring science concepts in them.

This activity not only boosts the enthusiasm of the students but also promotes in them fervor for learning beyond the conventional methods and realize that the discipline of science is not limited to a few people alone.

The interaction that takes place during the fair exposes them to a variety of other students coming from different schools thus providing them a platform to share ideas related to science.

Such activities are attended by various stakeholders like the funders, donors, teachers of the participating schools, students, community members, and various other people from the administrative front who witness the zest and enthusiasm amongst the students and teachers towards the complex subject of science.

PHASE IV: EVALUATION

The implementation can be counted as effective if the project evaluation is successful. The third phase of the program is an evaluation which not only evaluates the project outcome but also evaluates the involvement of the stakeholders in the entire process of implementation.

For the purpose, an impact matrix and tools for evaluation were designed to evaluate the outcome and the impact.

Since 2017, the project has not only met its program objectives but has also impacted the lives of students and teachers alike in increasing their enthusiasm and motivation towards science education.

The evaluation encompasses interviews with the students and the teachers alike in order to find whether they have benefitted from the BWL and its associated activities.

This phase of evaluation helps to identify the next course of action so as to enhance the facilities of BWL in the schools in order to ensure that maximum students participate in the activities and thus benefit from it.



SECTION 2

PROJECT PROGRESS



PROJECT OUTREACH

“**Making World a Brighter Place**” has always been the vision of Covestro that aspires to provide innovative solutions that enhance people’s lives. Keeping this vision alive at the CSR front, Covestro initiated brightening the lives of young children at the academic front.

Project Brighter World Lab was set up with an aim to not only lighten up the school infrastructure but also ensure that this light of academia brightens the horizons of the children and the community at large.

In terms of outreach, Brighter World Lab has not only scaled up physically but has had a positive change in terms of increasing the curiosity and the interest of the children in science and technology. The project has ensured that the children are not devoid of any infrastructural facilities related to learning which hampers them in their academic development.

Since its inception in the year 2017, the outreach of the Brighter World Lab has grown at a manifold level in each of the locations where the labs were set up.

Location	2017-18	2018-19	2019-20	Total Number of labs
Greater Noida	4	9	4	17
Ankleshwar	3	8	4	15
Mumbai	1	3	6	10
Cuddalore	2	-	6	8

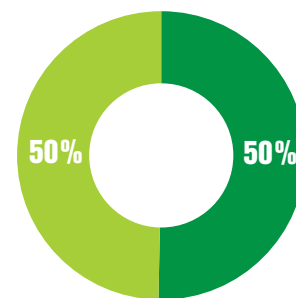
In the year 2017, Covestro had established 10 science labs across various schools closer to their functioning plants in the cities of Cuddalore, Mumbai, Ankleshwar, and Greater Noida. Looking at the benefits reaped by the labs and the increase in the learning demands of the students in the schools, it was decided to scale up the establishment of the labs in these four cities.

Thus, 20 more such labs were established in collaboration with ARCH Foundation. A year later, looking at the response received and the enthusiasm amongst the schools and the children alike, it was decided to scale up further and establish more labs in the needy schools.

Going by the mantra of brightening the lives of children through science, 50 Brighter World Labs have been set up in these four cities over a period of 3 years benefitting over 34,000 and more students.

TOTAL OUTREACH OF THE PROJECT

■ Boys ■ Girls



Total students covered - 34253
 Boy students - 17231
 Girl students - 17022

Covestro has exemplified science education in the schools through the setting up of Brighter World Labs across various schools in four different locations of the country. This was not only a CSR activity but an activity to raise young future generations of the country in a scientific environment that is conducive to their learning, in turn, making them capable of meeting the future demands of the nation.

Covestro is extensively working towards the promotion of STEM education and through its efforts has made sure that more and more students benefit and are not devoid of learning science at an early age.

The graph is indicative of the fact that science learning has not been limited to the boys alone. For a long time, there has been a gender-stereotypical notion about learning that science is meant for boys as they have a scientific temperament while girls have to choose other mellow subjects that their competencies demand.

Project Brighter world lab has broken the stereotype and has reached an almost equal number of boys and girls in terms of exposure to learning science subjects. Benefitting about 34,253 students out of which 17,231 are boys while 17,022 are girls, Project Brighter World Lab has proven that competencies need to be polished to reinforce the children to reach their potentials.

Having reached an equal number of boys and girls, the Project has helped a great deal in breaking the academic stereotype, thus giving each child an equal opportunity to learn and grow.



OUTREACH AS PER THE LOCATION

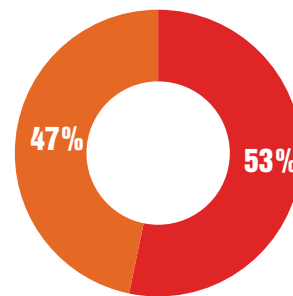
COVESTRO – MUMBAI

The corporate office of Covestro India is situated in Navi Mumbai which comprises of various departments such as HR Department, Accounts & Finance Department, Communication Department and IT Department.

Being situated in a city which is a paradox in itself, it became imperative to set up a lab as a pilot to examine whether the learning of the students can be enhanced or not.

MUMBAI

■ Boy Students ■ Girl Students



Total Students - 9977
Boys - 5312
Girls - 4665

In the year 2017, 1 lab was set up near a school near the Covestro Corporate Office. It is a well-known fact that Mumbai has the world's richest and also the world's poorest people staying in one city and naturally there are schools which have all the facilities for the children coming from the privileged backgrounds and there are schools for the children with bare minimum facilities coming from low and middle-income families.

It became all the more important for setting up the lab in this city so as to give a push to the young minds to go beyond their current situation and be academically sound in the science stream to be able to bring about a change.

Starting with one school in the year 2017, Covestro in Mumbai has reached to 10 schools, viz. Mazidun, St. Agrasen High School, Raja Shivaji Vidyamandir, R. S Deokar School, Prabhodankar School, Bharatratna Shreemati Indira Gandhi Vidyamandir, CLCV, R.J. Thakur, New English School and Junior College and Maharashtra Vidyalyaya, set up in the year 2019-20. The labs cover students belonging to grades 6th to 10th in each school.

The teachers, total 30 plus in number too have been benefitted from the labs due to the training received under the BWL Project. The teachers have said that this project has benefitted them at a personal as well as a professional front in terms of improving their teaching pedagogy.

Over the years the outreach has only increased in terms of numbers and benefits reaped. Total students benefitted from the labs are 9,977 with 5,312 boys and 4,665 girls in the city.

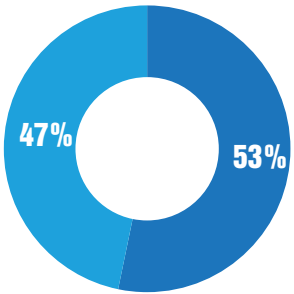
COVESTRO - ANKLESHWAR

Located in Gujarat, Ankleshwar is only 10 kilometers from Bharuch, boasting of its own Railway station which is conveniently located at the intersection of NH8. Over the last decade, Ankleshwar has come to be an industrial belt with a lot many industries coming up leading to the overall development of the city.

Due to the vast industrialization, Ankleshwar has developed at the economic, social, and moreover at the human development front which has brought visibility to the city.

MUMBAI

■ Boy Students ■ Girl Students



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With Covestro existing in the industrial area of Ankleshwar for quite a few years, 3 science labs were established for a start in the year 2017-18. The following year of 2018-19 saw more than a double number of labs set up in more schools ensuring that more children are reached through the efforts. Today, Ankleshwar has about 15 Brighter World Labs in the vicinity of the Covestro plant benefitting about 11, 227 students at large with 46 percent being girls and 54 percent being boy students.

The population of Gujarat has been traditional in their approach and largely, in the rural areas, there is a norm of educating the girl children up to a certain age only. Thanks to the free education system, girls have a chance to complete at least their primary schooling stage.

Seizing this opportunity, Covestro in Ankleshwar established the labs which are utilized for the children between 6th to 10th standards, thus exposing not only the boy students but also the girl students to the surreal world of science so that the zeal and enthusiasm of studying science further are kept intact, hence reducing the drop-out rates.

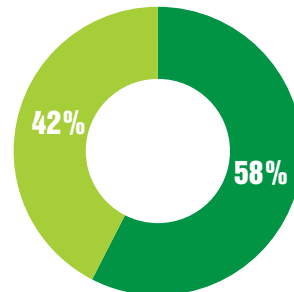
To this date, there are 15 science labs across the city benefitting 20 plus teachers in improving their teaching pedagogy and ensuring that the children learn the best with the available infrastructure meant for their academic growth.

COVESTRO – CUDDALORE

Being one of the first units to have commenced in India, the Cuddalore facility was originally a 100% subsidiary of 'Chemplast Sanmar Limited' back in 1988, under the name 'Urethane India Limited' which was eventually taken over in full shares by Bayer in the July of 2001, then being a 51% equity participant with Bayer Sanmar Limited.

CUDDALORE

■ Boy Students ■ Girl Students



Total Students – 2986
Boys – 1718
Girls - 1268

The unit also houses a state-of-the-art extruder system which ensures high production volumes, a lower cost per unit and an efficient mixing with a PLC operated manufacturing system to make sure the end result is nothing but of unmatched quality.

BWL Lab units in Cuddalore were started in the year 2017-18 with setting up of 2 labs in the city. Over the years total of 8 labs were set up in Cuddalore benefitting 8 teachers in total. 2,986 students have been benefitted out of which 1718 are boys and 1268 are girls.

Covestro in Cuddalore has ensured that the facilities reach the students who need the most. Thus identifying 8 schools over a span of three years to ensure the establishment of the labs in order to give a vast learning exposure to the students, with not only focussing on the boy students but female students as well.

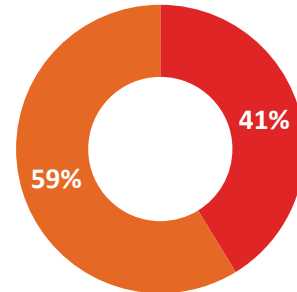
The 12 plus teachers who have been associated with the implementation of BWL activities in their schools have also been associated with training conducted to improvise their method of delivery of subjects related to science. Teachers have reported that there has been a significant difference in the teaching methodology that they adopted before the training and the one after the training.

COVESTRO – GREATER NOIDA

Covestro acquired the site in Greater Noida in February 2006, quickly inaugurating the System House on 12th June 2007, Eco Commercial Building on 21st January 2011, and the Color Competence & Design Center on 1st February 2011. The facility is raised over a total area of 77880 sq. Meters with the built-up area being 13,700 sq. meters.

GREATER NOIDA

■ Boy Students ■ Girl Students



Total Students – 10063
Boys – 4151
Girls - 5912

The BWL lab was set up in 4 schools of Greater Noida in the year 2017-18 and the maximum numbers of labs were set up in the following year of 2018-19. Compared to the number of labs in the other three cities, there are maximum numbers of labs in Greater Noida (17) followed by the city of Ankleshwar (15).

Total students benefitted in the schools of Greater Noida are 10, 063 out of which 4,151 are boys and amongst all the other cities, the project has benefitted a maximum number of girls in this city with a number of 5, 912 girls, surpassing the number of that of boy students.

The benefit is not only reaped by the students but the major beneficiaries are the teachers who say that project BWL has not only given them infrastructural support but has in the long run brought laurel to their schools which has only motivated the parents of the surrounding community to learn that science is not difficult, it's just due to lack of facilities and lack of learning opportunities that inhibits the students from reaching their desired potential.



ACTIONS UNDERTAKEN

STRATEGIC AREA 1

IMPROVING ACCESS TO QUALITY EDUCATION IN SCIENCE AND TECHNOLOGY

The major strategic area under BWL focused on the improvisation of access to quality education in science and technology. There is a widening gap between the access to equipment and labs required for teaching science and technology in the schools.

The schools which are economically and infrastructure wise sound can afford to make available such facilities in the schools but the major reason for Government/aided schools is the lack of funds due to which such facilities cannot be made available. This by and large results in the children not being able to understand the vast spectrum of opportunities science stream has to offer and thus end up not taking science as a subject in the subsequent years of schooling.

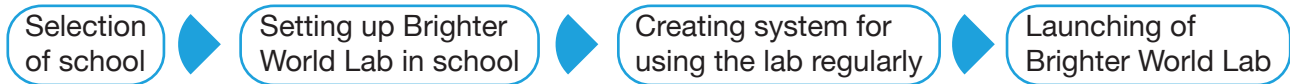
Identification of schools that require the facility and can maintain it through the baseline survey helps in understanding what facilities need to be set up in the schools for effective teaching and learning to take place. The set-up of the lab equipment is done in close consultation with the schools in order to ensure that the schools are provided with what is required and nothing less or more.

The strategic area was designed to have outcomes that would help not only in reaching out to the schools in terms of infrastructure development but also generate awareness regarding developing interest in science through various out of class learning experiences. This enables the students to generate interest and foster their participation in the science stream. This will also help in escalating the performance of the students, particularly in the stream of science



ACTIONS WE HAVE TAKEN

To meet the outcomes of the strategic areas, certain actions were designed and executed which were as follows:



SELECTION OF SCHOOLS BASED ON PRE-DETERMINED AREA

A selection-criteria for schools was set up with pre-determined areas of selection to set up Brighter World Labs in schools.

The assessment criteria included:

- The selected school should be Government/aided/ or trust run
- The schools must have classes functional till the 10th grade
- Willing to provide a separate room and required infrastructure for setting up the lab
- The resources made available must be in a good condition to enable setting up of the lab and ensuring that there would be no damage to the infrastructure that is made available.
- The schools must be ready to set up and use the lab efficiently

The schools must show readiness to participate in various events and competition organized under the project and must at the same time motivate the children and the teachers alike to enthusiastically take part in the activities under BWL.



SETTING-UP BRIGHTER WORLD LABS IN SCHOOLS

After baseline assessment and ensuring willingness of the schools, the Brighter world labs were set up in 20 Schools in 2019-20. Location-wise details of BWL set up in schools

Greater Noida

4

Ankleshwar

4

Mumbai

6

Cuddalore

6

Following steps were followed to ensure successful setting up of the lab:

Letter of request from school for setting up the lab

To arrive at the conclusion that the school does need the facility of the BWL and to ensure that the need is genuine, a letter of request is sought from the school authorities which states their desire to set up the lab and their readiness to use the lab for the benefit of the students. This gives a double assurance and lays credibility to the fact that the research indicated a need for setting up the labs in schools and that the schools need this facility as much as the Company wishes to set it up in the school.

Preparation of site for setting up the lab

Once the requirement has been identified and cross checked upon, the room is selected for establishment of the lab. The room is cleaned and furnished where tables and platforms are placed and walls are colored if the requirement is so. Getting the room ready is the responsibility of the schools as such.

Once the rooms are ready, the installations of the equipment and models for Brighter World Labs takes place by placing the required backdrops.

Once the lab is set up, the models are verified to check whether they are in working condition and operate well. After due verification, the labs are handed over to the schools, ready to be used.

Creating systems for regular usage of lab

To make the labs functional, a record book is given to all the schools for maintaining the usage of lab for lectures and visit to the lab. These act like a record document for the schools as well as the stakeholders for ready referral purpose to know how many times the labs are being used. This also acts as a method of assessing as to how often the labs are used for the benefit of the students.



“

This program is making a difference. CSR is not just about spending the money but it is more about how we are spending it and what value it is going to create to its stakeholders.

Schools from neighboring areas are now approaching us to initiate a similar program in their schools which is an indicator of the value it is creating for the schools where the project is going on. There are various tangible and intangible outcomes of this program and it will indeed help the students to have an aspiration for their future and work to achieve the same.

There is also another aspect of the project at an organizational level where a connectedness between the employees and the project at large. Today everyone in Covestro knows and connects with BWL either through participation in various activities or through the information center. It is being acknowledged and appreciated at the organizational level as well.

Gilroy Correia, Covestro-Mumbai



LAUNCHING OF BRIGHTER WORLD LAB PROGRAM

Once the labs were set up, a formal launching of the program was organized to propagate regarding the facilities in the schools. This activity was necessary to bring together all the stakeholders on one platform and talk about how the facility can be utilized for a better future of the students. This orientation acts as a major boost for the students as they get to learn that their schools are doing something actively to make their learning an enjoyable one.

The formal launching of the BWL project was held on the 6th of September 2019 at the Jeeva Metric High School in Cuddalore in the presence of Mr. Ajay Durrani, Managing Director, Covestro, Mr. Senthil Kumar D. M-Plant Head, Covestro, Mr. Rajakumar Alagappan-Manager-site, Covestro, Mr. Gilroy Correia-Sr. Manager CSR, Ms. Sonkee Shah-CEO of ARCH Foundation, and Mr. Rathinaval-Correspondent from Jeeva Metric High school were also present during the launch of the event.

Delegates from Asian Paints and Clariant also graced the ceremony with their presence. Correspondents and principals of other schools covered under the project also attended the program.

Mr. Ajay Durani talked about the importance of science education in today's time and how India needs more scientists, researcher, and developers in the future. He emphasized that Covestro through BWL program wishes to inspire students to become curious and courageous to have a colorful and bright future and contribute towards the development of the nation at large.

Mr. Senthil – Encouraged students for participating in various programs planned under the BWL program as the programs were meant to increase the enthusiasm of the students in the subjects of science. He emphasized the importance of science education in the schools and stressed on the fact that a very few privileged got the opportunity to learn through such furnished labs in the schools.

Ms. Sonkee Shah talked about a collaborative effort between ARCH and Covestro that gave birth to this idea. She emphasized on the fact that learning of a child is not the sole responsibility of the school alone but a joint responsibility of many stakeholders coming together to motivate the children to pursue their dreams and be supportive to them in whatever way they can.

She highlighted that a small gesture of encouragement can change the course of the child's life for good in the near future and encouraged all the present audience to be supportive in encouraging each child to be a better version of himself/herself through achieving academic excellence.

Brighter world Lab in Cuddalore was inaugurated by ribbon-cutting ceremony by students along with present delegates. Guests visited the lab and Mr. Durani interacted with the students and explained to them various models installed in the lab with the hope that this lab would encourage the young minds to become budding scientists in the years to come.



CASE STUDY

STORIES FROM GROUND - OUTCOME INDICATORS “Learning Science in this way is as good as playing Games”

Says Ms. Sumila from GHSS, Aandarmullipallam, Cuddalore, “The Brighter World Lab was established in this school in the year 2019 and I remember the enthusiasm in not only the students but also the teachers like us who teach science and mathematics to the secondary section of the schools.”

Teaching is not an easy job, specifically when you have to deal with the differential learning capacities of the students and when not much support is available to you to make the learning easier.

After the establishment of the BWL in the school, the school administration was relieved that now the fear of learning science from the minds of the students can be removed.

The students view the lab in awe and delight that a new system has supplemented their classroom learning which is going to be more interesting to learn from.

Ms. Sumila says that the science models available in the schools are so useful that they make science learning not only easy but interactive and fun-loving at the same time.

She adds “I have never seen students so enthusiastic about learning science, it’s the same enthusiasm that I see in them while they have periods like games!”

Brighter World Lab has not only raised the hopes of the students and teachers but has also contributed to the laurel of the school due to improvised grades in the science stream.

This is a story that makes many believe that no efforts made towards learning go to waste when the beneficiaries feel that whatever they have been provided with is a blessing towards not only their academic growth but the social and moral growth of their community at large!

STRATEGIC AREA 2

TEACHING PEDAGOGY - WORKSHOP AND TRAINING

Training and development forms a basic component of ensuring that the skills of the teachers are kept abreast of the latest era. Just provision of the lab is not the ultimate aim of the BWL project, but developing competencies of the teachers is the underlying agenda of it all. The lab may or may not be functional at some point in time, but the necessitated skills developed in the teachers can remain lifelong and ensure that the enthusiasm in the students to learn science remains.

Workshop and training of the teachers are undertaken at regular intervals to ensure that the teachers know the pedagogy of delivering science content. The workshops are taken at a common platform where the teachers from all the selected schools come together and discuss the problems, challenges of teaching, and learning faced by them. Moreover, the commonplace helps the teachers to share amongst themselves any positive outcome or best practices of teaching and learning that have been experienced by them over the period. The training gives them a hands-on learning experience while at the same time synergizes their efforts towards ensuring effective delivery of science content.

ACTIONS WE HAVE TAKEN

Orientation program for schools

Teacher's training program on Lab models

Refresher's training program on lab models

ORIENTATION PROGRAM

To meet the strategic area of workshop and training to enhance the skills of the teachers, ARCH, with active and effective collaboration had organized an orientation program with school Principals and science teachers at all the four locations where the Brighter World Labs have been installed.

DATE	LOCATION
18 th July 2019	Ankleshwar
24 th July 2019	Greater Noida
8 th August 2019	Mumbai
6 th September 2019	Cuddalore

The orientation programmes in the schools were held between the months of July-September 2019- 18th July in Ankleshwar, 24th July in Greater Noida, 8th August in Mumbai and 6th September in Cuddalore.

The major aims of the orientation program were as follows:

Orientation to the authorities of the schools: The school Principal Head Teachers, Trustees were taken into the loop of understanding the need for building the Brighter World Lab in the school and share the vision of the program to align the same with the vision and mission of the schools to make it a sustainable endeavor in the schools for a long-term commitment. This was also done to ensure that the administration and authorities of the school would be the flag bearers of the BWL in their respective schools and ensure its effective implementation even after the Company stakeholders wean out.

The orientation also included **sharing the plan of action for BWL establishment and the activities** to be undertaken by the schools to ensure the progress of the activities and the outcomes of the BWL to address the way forward.

The **strategic action plan also included** the development of a joint work plan for project implementation. The clear-cut roles expected from schools and partner implementers were shared during the orientation.

The orientation program at all locations started with a team-building activity where schools were distributed in various groups. These groups shared their ideas and challenges regarding science education and proposed solutions to overcome those challenges.

A detailed plan of action along with dates was finalized in consultation with the schools. This plan of action served as a blueprint for the schools for the effective management of activities under BWL.



Orientation is not just about telling our stakeholders what this project has in store for them. But it is about connecting with them, knowing them, and understanding them.

Orientation programs organized at different project sites, in the beginning, have helped me to know my stakeholders better and appreciate them and their views for the success of the program. We are now a team that is working together towards achieving a bigger goal that is beyond improving academics.

Gilroy Correia – Covestro - Mumbai



**ORIENTATION
@ CUDDALORE**



**ORIENTATION
@ ANKLESHWAR**





**ORIENTATION
@ MUMBAI**



**ORIENTATION
GREATER-NOIDA**



TEACHERS' TRAINING PROGRAM IN LAB MODELS

DATE	LOCATION	PARTICIPANTS
20-21 August 2019	Ankleshwar	15 Teachers
5 – 6 August 2019	Greater Noida	17 Teachers
28-29 August 2019	Mumbai	30 Teachers
9 – 10 October 2019	Cuddalore	14 Teachers

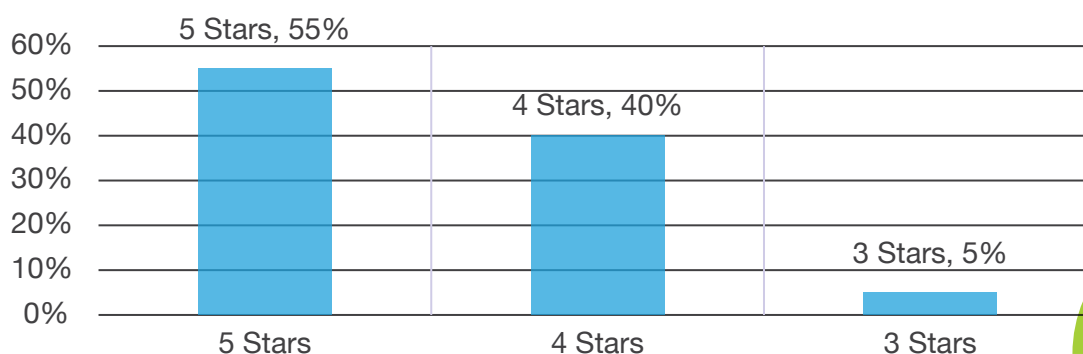
The teacher's training program was organized in the form of a semi-formal workshop that lasted for two days in each city. The idea was to get all the secondary teachers associated with the BWL project in their respective schools on one platform so that a common training can be provided to them.

Teachers' training program forms an important aspect of BWL Project. The highlight of the program is to train the teachers regarding the usage of various models installed under the BWL. The training would aim to help the teachers understand the concept of science teaching and resolve any query regarding the ambiguity of any sort related to the usage of models. The training program also helps the teachers to come together to exchange ideas and knowledge related to concepts of science teaching in the schools.

The training programs were focused on the explanation and working of models installed in the lab and the basic pedagogy of science and mathematics.

At the end of the training, the teachers were asked to rate the training programs so that the future training programs for the teachers under the BWL Project could be improvised.

RATING OF THE TEACHER TRAINING PROGRAM



With regard to the overall rating of the training program, teachers believed that the overall training was good, however, more number of days should have been dedicated towards the training as it was quite a wholesome and enjoyable activity.

With regard to the arrangement of the training program, the teachers were quite happy with the methodologies they were taught, ways to tackle the scientific temperament of the children in the class, and moreover increasing their own skills and competencies.

The training program proved to be a wholesome one that catered to the teaching needs of the teachers and at the same time upgraded the skills of the teachers in order to be better equipped with the methodology of teaching science concepts. The outcome was better teachers, ready to take on the challenges of teaching science as a complex, yet amazing subject and wanting more training programs of similar nature in the years to come.



CASE STUDY

STORIES FROM GROUND - OUTCOME INDICATORS

“Teachers are Learners too”

“It is quite interesting that such programs are held in the school,” says Mr. Pratik Mahadik of CLCV School, Mumbai. “Science teaching can be made so interesting with the right kind of facilities and we are thankful to the BWL Project launched by Covestro and ARCH Foundation.”

Mr. Mahadik reflects that the training that they received during the workshop for teachers not only helped them identify new ways of teaching one concept over and over again but also made them reflect upon the fact that teachers are learners too, they learn ways to combat difficulties of the students through learning new methodologies to suit the learning demands of the students as the learning needs of each child are different.

“The workshop helped us realize that there are so many ways to make science interesting and it also helped us interact with other teachers and discuss the difficulties that each one of us faces in dealing with students when it comes to teaching the science concepts.”

BWL is a blessing for teachers like Mr. Mahadik who work in schools that have fewer facilities to meet the learning demands of the students.

“Workshops like BWL training are very important as they make us realize our competencies as teachers. It is fun to see the enthusiasm in the children for learning science and as we have to learn with the students to, BWL should have activities for us teachers too sometimes...” he laughs and says.

It is not an unknown fact that BWL has been successful not only for the students but teachers as well who believe that training has increased their competencies for making science an enjoyable discipline.

SCIENCE CLUB ACTIVITIES

Science Clubs are essential ways to inculcate the habit of problem-solving skills in the students. Science Clubs under the BWL project caters to inculcate the scientific attitude and genuine interest in science and also helps to supplement the theory that is taught in the classrooms to give a practical dimension to the syllabus taught.

Students belonging to the 6th – 8th grade of the schools are made to enroll in the science clubs which largely emphasize DIY science-based demonstrations and activities, thus giving a practical exposure in a semi-formal manner.

LOCATION	STUDENTS COVERED	TOTAL STUDENT EXPOSURE TO CLUB ACTIVITIES
Ankleshwar	908 students	2876 Exposures
Greater Noida	1614 students	4793 Exposures
Mumbai	1006 students	1980 Exposures
Cuddalore	735 students	1473 Exposures

The above table gives a brief overview of the total number of students benefitted through the activities of the Science clubs in the schools.

In Ankleshwar, a total of 908 students were covered under the Science Clubs and those 908 students were exposed to various activities under the club indicating the number of times each student was exposed to activities under the club. On average, each student was exposed thrice to various demonstrations and activities under the club.

In Greater Noida, a total of 1614 students enrolled and 4793 student exposure was given. Schools in Mumbai had 1006 students enrolled and 1980 exposures to the activities while in Cuddalore 735 students enrolled for science club activities achieving total 1473 exposures

A timetable was developed by the Project Team to facilitate the science club activities so that each class can get a fair chance to participate in the club activities and learn.

The Project Volunteers thereby visit the school during the allotted time slots to conduct the activities with the children.

In Greater Noida, a total of 1614 students enrolled and 4793 student exposure was given.

 **Invisible Ink**

 **Oxygen is Necessary for Burning**

 **Air Pressure**

 **Build a Fizz Inflator**

 **Refraction of Light**

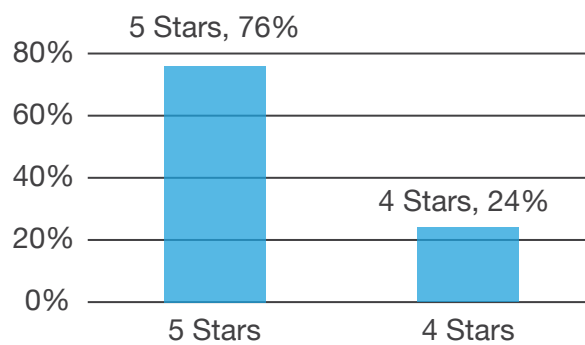
 **Balloon Rocket**

 **Newton's Law of Inertia**

The Science Club activities help in providing hands-on experience to students, using the demonstration method to teach students different concepts of science. This activity not only proves to be fun-loving but also give an informal platform for discussions based on the experiments conducted.

Majority of the teachers rated the science club activities as excellent.

RATING OF THE SCIENCE CLUB ACTIVITIES



EXPERIENCE SHARED BY PROJECT COORDINATORS

Schools had a very positive attitude towards the activities. The teachers too joined the DIY activities to upgrade themselves and learn. Students learn from DIY activities more as they give them a hands-on experience to do and learn. It is a kind of fun learning activity where children learn to learn while having fun. It not only helps them learn but also boosts their creativity. These activities have increased the attendance level of the students and have positively reduced the school drop-out rate.

My take away from these activities is that it has not only to help me build a healthy rapport but it has also taught me professional communication skills and enhanced problem-solving ability.

Sumaiya Chauhan – BWL Coordinator, Ankleshwar

DIY activities have helped me learn strategic teaching methods to teach in a simplified manner. The activities are not only enjoyed by the students, but teachers also take an active interest in them. The best thing about these activity slots is that children wait eagerly for the sessions to take place as they participate with full zest and enthusiasm. Such sessions must be held regularly with the introduction of more activity-based learning covering not only the aspects of the curriculum but also the ones remotely related to them.

Prajakta Kudka – BWL Coordinator, Mumbai

The teachers if the schools were always positive regarding the DIY activities and they wish that such activities are conducted more and more in their schools. Students participated with interest and always questioned and were excited about conducting the activities. I suggest that to make DIY activities more interesting, DIY Teachers' Training should be conducted at least twice each year. The DIY sessions should also include students of 10th standard as we have a lot of activities concerning their syllabus also. More DIY activity slots must be conducted in schools as they motivate curiosity and interest in the minds of the children.

Vinoth Kumar – BWL coordinator, Cuddalore

The DIY activities conducted during the last academic year got a great response from the teachers as well as the students. It was a great way to learn science. However, it was found that due to the exam rush, not much time is allotted to DIY activity slots which are important. I suggest that more DIY slots are covered in the time table of the school excluding the exam schedules.

Vipendra Kumar – BWL coordinator, Greater Noida

ARCH
WORLD LAB
covestro

Date: 27-11-19 Time: From 1.40 to 4.20

Name of the School: G.H.S.S. Perandiyakkuppam

Total No. of Students covered: 65 500 Vis

No. of teachers present: 1

Detail of activities:

Name of the activity	No. of students	Standard
Invisible Ink	65	VIII A&B
Surface Tension	65	VII A&B

Feedback of Teachers/School:
Very good demonstration of and reduction. It is very

Signature: _____
Project Coordinator

ARCH
WORLD LAB
covestro

Date: 23/11/19 Time: From 9:30 to 10:30

Name of the School: C.L.C.V

Total No. of Students covered: 47 8th

No. of teachers present: 1 teachers

Detail of activities:

Name of the activity	No. of students	Standard
Reaction between vinegar and	47	8th
Newtons Third Law of motion	47	8th

Feedback of Teachers/School:
Students enjoyed the above mentioned. They have study the experiments approach based

Signature: *Rajalaxmi*
Project Coordinator



STRATEGIC AREA 3

EVENTS AND COMPETITION

Events and competitions serve as a common platform to exhibit the progression of teaching and learning in schools. This is a place where the teachers, students, parents, and other stakeholders participate to exhibit what was taught and learnt. The events motivate the students to increase their standard of learning and exhibiting their knowledge to showcase a positive aptitude for science education.

The events also show improved confidence and presentation skills in the students as they learn to explain varied concepts in a simplified manner. Since many children from various schools participate in the events, there is an increased positive reinforcement amongst the students for competitiveness that is healthy and in the quest for acquiring new knowledge.

Above all, the events have only enhanced the reputation of the schools among the other groups of schools. Such events were not regular features in the schools as such and through these fairs and activities, the schools have come into the greater limelight of organizing pro-student initiatives for enhanced learning experiences.

ACTIONS WE HAVE TAKEN

Science Quiz

Poster Competition

Skit Competition

Eureka Science Fair



EUREKA SCIENCE QUIZ



To bring about a competitive streak in the children, a science quiz is organised at an inter-school level at all the locations.

The objective of the science quiz was to expose the students beyond the traditional methods of classroom teaching and learning to a more robust active way of learning so as to establish a relationship between theory and practice off the classroom situation. Apart from this, the hidden objective is to positively reinforce the children to interact with the other students from different schools and engage into a healthy competition of learning and exhibiting more to learn.

LOCATION	DATE	STUDENTS COVERED
Ankleshwar	30th Sept-1st October 2019	260 students
Greater Noida	26th – 27th September 2019	260 students
Mumbai	23rd – 24th September 2019	200 students
Cuddalore	15th November 2019	160 students

The Science Quiz was organized in Ankleshwar from 30th September to 1st October 2019 wherein 260 students participated.

In Greater Noida, the competition was held from 26th-27th September 2019 where 260 students participated.

In Mumbai, the competition was held from 23rd-24th November 2019 benefitting 200 students while in Cuddalore it was a one-day event held on 15th of November 2019 benefitting 160 students.

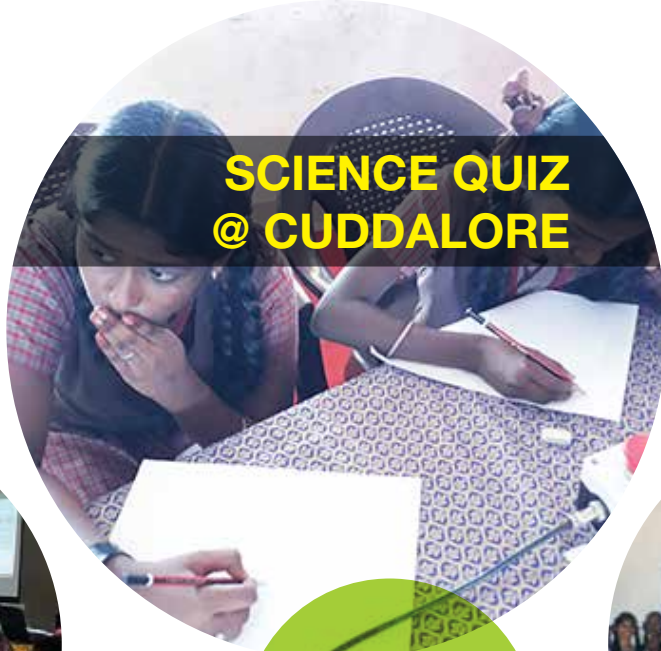
THERE ARE VARIOUS LEVELS UNDER THE SCIENCE QUIZ WHICH ARE AS FOLLOWS

LEVEL 1

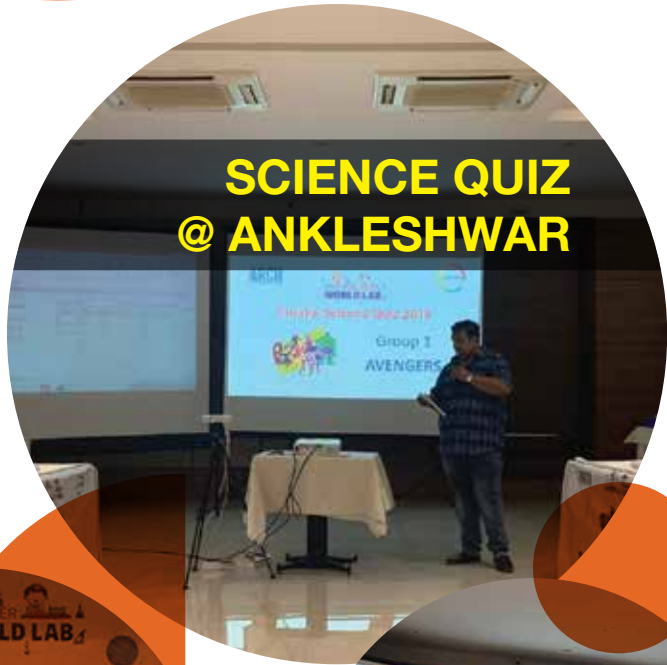
To select the teams, a paper and pen screening round for 880 students from the selected schools was conducted at the school level. The pen and paper screening included basic questions from mathematics, physics, reasoning, logic, and biology. 10 teams from each school had participated, each team comprising of one student's representative from 7th and 8th grade each.

One team from each school that scored the highest was selected to be eligible to be promoted to the semi-final found.

SCIENCE QUIZ @ CUDDALORE



SCIENCE QUIZ @ ANKLESHWAR



LEVEL 2

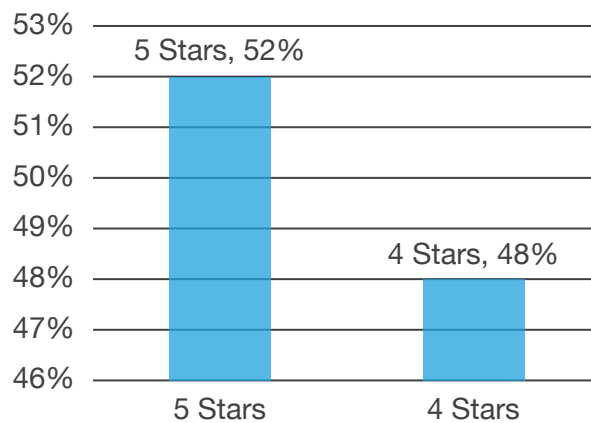
The students who were screened reached the semi-final round. A total of 64 teams (128 students), comprising of two members each appeared for the semi-final round. The teams were again divided into groups for the semi-final round and winner teams of each group were selected for the final round.

LEVEL 3

A total of 16 teams (32 students) participated in the final round. The students who won in the final rounds were felicitated with medals and all the 880 participants were awarded a certificate each for participation.

This acted as a motivation for the students to participate and be motivated more to engage in such learning experiences.

RATING OF SCIENCE QUIZ



“

I extend my heartiest appreciation for the work being done by “ ARCH Foundation “ in the field of education & training for the school children’s is commendable , I am truly impressed by the work and appreciate the efforts you have put in to accomplish this assignment. I hope ARCH Foundation will strive hard for overall development of the students community.

I wish ARCH Foundation best of Luck for all the future endeavor.

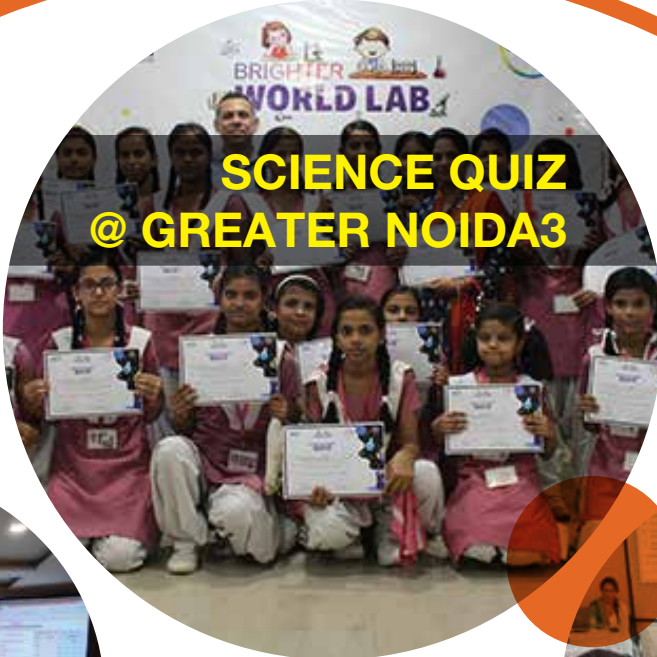
Mr. A. Rajakumar, Covestro - Cuddalore

”

**SCIENCE QUIZ
@ MUMBAI**



**SCIENCE QUIZ
@ GREATER NOIDA3**



The background image shows two young girls in school uniforms, likely at a science fair or exhibition. They are looking down at a project on a table. The girl on the left has her hair in braids and is wearing a blue blazer over a white shirt and a dark tie. The girl on the right also has braids with pink bows and is wearing a similar uniform. They appear to be engaged in a hands-on activity. The text 'CASE STUDY' is overlaid in large, bold, white letters on a dark blue background. Below it, a teal box contains the quote 'I like being called a young Scientist'. The main text of the case study is enclosed in a white box with a dashed teal border.

CASE STUDY

“I like being called a young Scientist”

8th-grade student from Ankleshwar, Chauhan Devkumar comes from a humble background of a farmer who is metric qualified and is engaged in a petty service. Enthusiastic about the science quiz to be held, Dev was ready to participate and give it a chance as his future endeavour is to become a scientist.

“Initially I was scared to participate, but I thought that if I participate, I will get to learn something new.”

Young Dev was scared initially as he saw that other students were quite prepared to spear for the quiz.

“Even I have the potential, I am no less than the others, I will answer in a calm and composed way.”

This never give up attitude of Dev helped him bag a prize in the science quiz for himself and his school.

He adds with pride “Everyone in my class calls me a scientist and teachers often ask me questions saying that you won a science competition, you must know the answer.”

Dev has improved at a manifold level after winning the science competition. He not only has increased self-confidence, but is also now more adamant about achieving his dream of becoming a scientist!

EUREKA SCIENCE FEST

Science is a celebration and enjoyment for those who wish to learn new things through experiments and practical exposure.

As an integral part of the Brighter World Lab Project –Eureka Science Fest – a three-day fest of various activities and exhibitions helping the students demonstrate their learning and skills in the field of science and math was organized in Greater Noida, Ankleshwar & Airoli.

The aim of the Eureka Science Fest was to provide a whole new learning approach, not only to the children and teachers but also to the public at large. The importance of science and technology has just grown with time in our day to day activities. Thus the goal was to provide everyone with an environment to know more about science and its application.

During this fest, various activities and exhibitions were arranged in order to provide the students with a platform to demonstrate their skills in the field of Science and Math and also provide them with a fun-filled learning environment through a number of activities.

Eureka Science Fest is a festival embarking not just the development and involvement of students in the field of science but a yardstick to measure the impact and success of the project, where after every changing academic year, the project tries to reach hundreds and thousands of students to develop their scientific temperament and provide a unified platform for students to believe in their capabilities and rise up to the innovative and entrepreneurial aspirations of Young India.

Various activities like poster competitions, debate competitions, and Eureka Science Fairs are organized under this 3-day event.

POSTER COMPETITION

the three-day event starts with poster competitions to help incorporate the imaginative skills in the minds of the children. Posters are a way of bringing about creativity in amongst the children while at the same time make them realize that science is art if thought from a certain perspective.

The theme of the poster competition was My Planet, My Responsibility where the children were encouraged to think from an environmental perspective towards saving the planet from an individual perspective.

PROGRAM OUTREACH

LOCATION	NUMBER OF PARTICIPANTS
Greater Noida	596 students
Ankleshwar	556 students
Mumbai	475 students
Cuddalore	320 students

DEBATE COMPETITION

Debate competition under the Science Fest is held with a greater objective of helping the students see the power of deducting rational, reasoned arguments and compelling evidence in action with a reason. This in turn helps in increasing the critical thinking skills in the children while at the same time increasing their self-esteem, confidence, and poise.

PROGRAM OUTREACH

LOCATION	NUMBER OF PARTICIPANTS
Greater Noida	30 students
Ankleshwar	30 students
Mumbai	24 students

EUREKA SCIENCE FAIR

Science fair is a culmination of all the three days held together with a larger-than-life Science Fair where students from several schools participate with great enthusiasm and excitement. Project Brighter World Lab gives the students an opportunity to design, create and display science puzzles, math games, and working models on physics, innovation, and technology.

During this Science Fair, the students not only exhibit their knowledge in the field of Science and Technology but also interact with the audience and keep the learning spirit high. The students make the environment very lively through their involved participation.

PROGRAM OUTREACH

LOCATION	NUMBER OF PARTICIPANTS	TOTAL FOOTFALL
Greater Noida	296 students	1600 plus students
Ankleshwar	270 students	1500 plus students
Mumbai	213 students	1900 plus students

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BWL aimed at making children curious and courageous and the various events organized under the project have helped to achieve the goal to a great extent. Installing the lab is one of the crucial aspects, however, usage of the same has a great dependency on the involvement and motivation of the teacher plus the administrative load they have to manage in the school. Eureka gives a platform to the students to explore their potential and creativity.

What I witnessed was – students were given a concept and they broke the boundaries of text-book and used the internet, explored various ideas to create something innovative and different. Quality does matter but what mattered more during Eureka was what they have learned and what they are going to take back after the program. What I could see as a take away was – Self-confidence, self-esteem, and courage to dream big.

It was also a great platform for schools we are working with. They usually do not get such opportunities and I am sure Eureka helped them to know where they stand today and what the road map is for the future. It gave them a benchmarking to achieve and thrive to achieve more and more in times to come.

Gilroy Correia, Covestro-Mumbai

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LOCATION WISE EUREKA SCIENCE FEST- 2020

EUREKA SCIENCE FEST 2020 GREATER NOIDA

The Science Fest was organized in Greater Noida from 7th to 9th January 2020. Various events under the banner of the Eureka Science fest were organized.

POSTER COMPETITION

Day 1 of the Science Fest started with the Poster Competition on the theme “My Planet, My Responsibility.” Total of 15 schools participated from the city and 596 children took part in the competition.

The competition was quite a colorful one which saw a series of ideas and imagination of the students towards saving their planet at an individual, community, and national level.

WINNERS AT A GLANCE

POSTER COMPETITION	SCHOOL	NAME OF THE STUDENT
1 st Prize	KCS Girls Inter College	Anushka
2 nd Prize	M C Gopichand Inter College	Kanika Bhati
3 rd Prize	Gandhi Smarak Inter College	Aman
Consolation	M C Gopichand Inter College	Rohini Singh
Consolation	KCS Girls Inter College	Akansha
Consolation	KCS Girls Inter College	Priyanshi
Consolation	KCS Girls Inter College	Himani

Students from KCS Girls Inter College won the maximum number of prizes under the poster competition. The enthusiasm in the children was evident and all were excited to participate in the future Eureka Science Fests to be held.



DEBATE COMPETITION

The debate competition was an interactive way of getting students to know each other through discussions, negotiations, and consensus and understand that there is a scientific discussion to everything. A total of 15 schools participated comprising of two students in each team, making it 30 student participants.

WINNERS AT A GLANCE

Best Team- Gurukul	Chetram Sharma Girls Inter College	-
Best Team- Modern School	K. C. S. Girls Inter College	-
Best Debater- Gurukul	Chetram Sharma Girls Inter College	Shalini Jha
Best Debater- Modern School	Noida Kanya Inter College	Kashvi Baisoya
Best Audience	Noida Kanya Inter College	Shital



EUREKA SCIENCE FAIR

Eureka Science fair was organized on the last day where the students from various schools participated and interacted regarding various concepts of science. The students and the teachers participated with enthusiasm and zeal.

A total of 296 students participated with a total footfall of 1600 and more people.

The children were quite enthusiastic about interacting with various people who had visited the fair and were very prompt when it came to explaining various models that they had prepared under the BWL Project. Some of the activities that the children covered under the fest included physics-based working models, alternate use of plastic, smart agriculture techniques, Science-based DIY activities, models/exhibits on science and maths.

There was a lot of zest and fervor amongst the children as the winners were to be announced during the fest. Children received participation certificates.

WINNERS AT A GLANCE

FUN WITH SCIENCE			
1 st Position	2 nd Position	3 rd Position	Consolation
Noida Kanya Inter College	MC Gopichnad Inter College	Shri Gandhi Smarak Inter College	Choudhary Keshram Inter College
SCIENCE WIZARD			
Noida Kanya Inter College	Shyam Singh Smarak Kanya Inter College	MC Gopichnad Inter College	Shri Gandhi Smarak Inter College
ENVIRONMENT BUILDING			
Noida Kanya Inter College	MC Gopichnad Inter College	KCS Girls Inter College	Shri Gandhi Smarak Inter College
WORKING MODEL			
Navjeevan Inter college	MC Gopichnad Inter College	KCS Girls Inter College	Noida Kanya Inter College
Eureka Trophy: Noida Kanya Inter College			

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“I have seen the program evolving over the years with increased participation of the students who are confident about their interactive models and presentation. It is heartening to see the exuberance of the children. With such programs reaching rural area there’s grown interest in science and technology. I hope it will lead to developing many future scientists. Professionally feel accomplished to be part of such noble mission.”

Mr. Arvind Kumar, Volunteers Speak



EUREKA SCIENCE FAIR @ GREATER NOIDA



EUREKA SCIENCE FAIR @ GREATER NOIDA





CASE STUDY

WINNER OF EUREKA SCIENCE TROPHY 2020 @ GREATER NOIDA
“Passion and Hard work made us Win”

Beaming with pride, Ms. Priyanka Mishra from Noida Girls Inter College, Greater Noida tells us the feeling of winning the trophy of the Eureka Science Fest.

“We were happy to win the trophy, we thank God for giving us this opportunity.”

Talking about the preparation of participating in the science fest Ms. Mishra recalls “I did guide the students as per my knowledge and after using the internet at times.”

Students were very enthusiastic about participating in the event and it was seen that all the other schools were also well prepared to participate.

“The students are all the more enthusiastic after winning the trophy and now they are eagerly waiting for the science fest to be held next year.”

It is events like these that give a boost to the confidence of teachers and students alike which makes them more passionate about studying and excelling in doing what they love the most!

EUREKA SCIENCE FEST 2020

ANKLESHWAR

The Science Fest was organized in Greater Noida from 20th to 22nd January 2020. Various events under the banner of Eureka Science fest were organized.

POSTER COMPETITION

Day 1 of the Science Fest started with the Poster Competition on the theme “My Planet, My Responsibility.” Total of 15 schools participated from various participant schools and a total of 556 students enthusiastically created posters that spoke of saving the planet from the perspective of each one.

WINNERS AT A GLANCE

POSTER COMPETITION	SCHOOL	NAME OF THE STUDENT
1 st Prize	The Gyandeeep Prathmik Shala	Parmar Om Hareshbhai
2 nd Prize	Shantanu Vidhyalaya English Medium	Shrivastav Sushma R.
3 rd Prize	Pioneer Prathmik School Jitali	Vasava Shvetaben F.
Consolation	Maharaj Shree K. G. M. Vidhyalaya	Jadav Vidhi D.
Consolation	Maharaj Shree K. G. M. Vidhyalaya	Patel Janvi V.
Consolation	Maharaj Shree K. G. M. Vidhyalaya	Machi Patel Nirav H.
Consolation	Shree Aadarsh K. M. S. Prathmik MishraShala	Diwan Mo.Sahil Sokat

Students from Maharaja Shree KGM Vidhyalaya won the maximum consolation prizes while the first position was gained by Parmar Om from The Gyandeeep Prathmik Shala.

The event was quite a colourful which helped in unfolding the creative side of the children in terms of how each one can be responsible for saving the planet.

“Program was good, I participated in Poster assessment activity and it helped me to develop my judgement skills.”

Mr. Bharatkumar Kachiya, Volunteers Speak

DEBATE COMPETITION

the debate competition was action-packed with about 15 teams participating in it comprising of 30 participants charged up to negotiate and discuss various issues related to science.

The debate competition was the most interesting part of the fest as the children were really charged up with facts and data to counter their co-participants.

Best Team- Gurukul	Humdard High School	-
Best Team- Modern School	Shantanu Vidhyalaya English Medium	
Best Debater- Gurukul	M. I. Kazi Memorial School	Suhana Sindhi
Best Debater- Modern School	Shantanu Vidhyalaya English Medium Shree Aadarsh K. M. S. Prathmik MishraShala	
Best Audience	Shree Aadarsh K. M. S. Prathmik MishraShala	Tanisha

Humdard High School won the best team award. What was most interesting was that the audience was equally interested in the competition and thus Ms. Tanisha from Shree Aadarsh K. M. S won the best audience award. This was important so as to motivate the audience also to participate in the competitions in the times to come.





“I was appointed as a judge for the debate competition. The topic was quite interesting and the session was interactive and interesting. It was a very refreshing session that refreshed the knowledge of history altogether.”

Mr. Rashmikant Trivedi, Covestro-Ankleshwar, Volunteers Speak



EUREKA SCIENCE FAIR

Eureka Science Fair is always the day that teachers and students both await for. This is the day when the students and the teachers have a chance to participate with the people from other schools and discuss about science and other things.

The Eureka Fair at Ankleshwar saw 270 participants who worked on various models based on Physics, ideas about alternate uses of plastic, smart agricultural practices which are the need of the hour, and various activities/models/exhibits on science and maths.

There could be seen enthusiasm in the air as the children were so interactive and participative in each other’s work. It was a day well spent where each child understood the impact of learning science in a meaningful way.

WINNERS AT A GLANCE

FUN WITH SCIENCE			
1 st Position	2 nd Position	3 rd Position	Consolation
Shantanu Vidyalaya (English Medium)	Maharaja Shree KGM Vidyalaya	The Gyandeeep Anupamkuvarba Vidyalaya	Pioneer Jitali High School
SCIENCE WIZARD			
Shantanu Vidyalaya (English Medium)	Hamdard High School	Pioneer Jitali High School	Motali Primary School
ENVIRONMENT BUILDING			
Pioneer Jitali High School	The Gyandeeep Anupamkuvarba Vidyalaya	Navakasiya Primary / Secomdary School	Motali Primary School
WORKING MODEL			
Maharaja Shree KGM Vidyalaya	Kosamdi Vidyalaya	The Gyandeeep Anupamkuvarba vidyalaya	Pioneer Jitali High School
Eureka Trophy: Pioneer Prathmik School Jitali			

Shantanu Vidhyalaya, The Gyaandeeep Anupamkuvarba Vidyalaya and Maharaja Shree KGM Vidyalaya were amongst the many schools which stayed at the forefront of winning.

Motali Primary School was the winner of all the consolation prizes.

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“Making Science Make Sense (MSMS). Creating awareness about application of scientific principles in day to day life, increases curiosity amongst these students and make these subjects more interesting to learn.”

Mr. Rajan Salot, Volunteers Speak

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“The program was excellent”

Mr. Rasik Kagathra, Covestro - Ankleshwar, Volunteers Speak

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CASE STUDY

“It was a Tough Competition, but we were Confident”

Pioneer Prathmik School was the winner of the Eureka Trophy and the teacher, Ms. Belim Zahira Ilyas, who prepared the students couldn't contain her happiness over anything.

“I was very happy, I felt like I could conquer the world.”

The students and their teacher together worked very hard and saw YouTube videos regarding various models before deciding on what they had to make the model on.

It was a tough competition for the students but the teacher says “we were confident about winning as we had prepared well for this competition.”

The winning trophy was a great source of motivation for the students of Pioneer school which not encouraged the students to prepare well for the Eureka Fairs in the future but also gave them a ray of hope that science, after all, can be conquered with passion, fun, and interest!

“During the preparation, I felt more closer to my students. I could assess their talent and potential which I was also unaware of. This was a great source of bonding among all of us.”

With a dream to participate with more students and more preparation next year, students of Pioneer have made up their minds to keep working hard to get the Eureka Trophy to their school each year.

EUREKA SCIENCE FEST 2020 NAVI MUMBAI (AIROLI)

The Science Fest was organized in Navi Mumbai from 3rd February to 5th February 2020. Various events under the banner of the Eureka Science fest were organized where the teachers and the students were overjoyed to participate.

POSTER COMPETITION

The first-day poster competition was kick-started with 475 students participating from 12 schools who drew various posters on “My Planet, My Responsibility”

The event saw never seen before the creativity of students. There were smiles and a streak of positive competitiveness around which motivated the students to enjoy the entire competition while at the same time come with various colorful and imaginative ideas.

WINNERS AT A GLANCE

POSTER COMPETITION	SCHOOL	NAME OF THE STUDENT
1 st Prize	B.S. M'S Maharashtra Vidyalaya	Waghchaure Tanmay R.
2 nd Prize	Mahatma Gandhi Hindi High School	Akansha Manoj Yadav
3 rd Prize	B.S. M'S Maharashtra Vidyalaya	Kadam Srushti K.
Consolation	Bharatratna Smt. Indira Gandhi Vidyamandir	Suthar Anushka D.
Consolation	Mahatma Gandhi Hindi High School	Pavitra Basuraj Waghamare
Consolation	St. Agrasen High School (English Medium)	Yash Dinesh Mishra
Consolation	St. Agrasen High School (English Medium)	Priya Tejnarayan Goud
Consolation	Bharatratna Smt. Indira Gandhi Vidyamandir	Kumkar Abhishek S.

The students from B. S. M's Maharashtra Vidyalaya and St. Agrasen High School (English Medium) took to the winning streak as majority of the prizes were won by their students.

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“It was pleasure to be part on the panel. This gives me an opportunity to showcase my expertise on subject matters.”

Dr. Ramchandra Kandra, Volunteers Speak

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“A very good theme was given for Poster Competition. Participation by kids and employees is highly encouraged. The program was well arranged, conducted and outlined, evaluation criteria is easy and measurable. I learnt many evaluation skills and ofcourse, creativity.”

Shubhada Ghaisas, Covestro - Mumbai, Volunteers Speak



DEBATE COMPETITION

Debate Competitions are perhaps the most undere-rated competitions of all. There is a major fear in the minds of the children regarding talking about issues but the case was not so for the children who participated in the debate competition at Navi Mumbai.

The theme of the debate was also such which had students discussing amongst themselves. The topic was Gurukul v/s Modern School and the children gave a tough competition to each other in this regard.

A total of 24 participants from 12 schools participated and the competition was packed with rational discussions and negotiations from all the participating team members.

WINNERS AT A GLANCE

Best Team- Gurukul	St. Agrasen High School (English Medium)	-
Best Team- Modern School	Raja Shivaji Vidyamandir	-
Best Debater- Gurukul	St. Agrasen High School (English Medium)	Vivek
Best Debater- Modern School	Late Chandrabai Laxman Chaughule Vidyalaya	Ranju Yadav
Best Audience	St. Agrasen High School (English Medium)	Rajesh Gupta Nilesh Rambriksh

Winners from each category were decided and as a unique way of thanking the audience in a way that motivates them to be participants in the fest in the years to come. Mr. Rajesh Gupta and Nilesh Rambriksh were regarded as the best audience for the debate competition.

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“Great enthusiastic participation of the students. Students were well prepared and program was systematically executed by the coordinators. I learnt to think positive from this program and always be open to learning new things in life.”

Ms. Pallavi Deshmukh, Covestro - Mumbai, Volunteers Speak

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EUREKA SCIENCE FAIR

Eureka Science fair is the most awaited event of the year in all the schools and has the maximum number of people attending to see the students work as young scientists on various things. The Eureka Science Fair had over 1900 people attending the fair and a total of 213 participants from across the various participant schools.

Students presented models, activities, and exhibits on various science and mathematics concepts and grabbed the attention of many people who witnessed the fair.

What was interesting was that each year the students keep getting better and better from their older selves and there was a positive competitive streak in all the students which helped them excel and enjoy the fair with all their hearts.

WINNERS AT A GLANCE

FUN WITH SCIENCE			
1 st Position	2 nd Position	3 rd Position	Consolation
St. Agrasen High School (English Medium)	Mazidun English School	St. Agrasen High School (Hindi Medium)	Prabodhankar Vidyalaya Digha, Airoli
SCIENCE WIZARD			
St. Agrasen High School (Hindi Medium)	Mazidun English School	St. Agrasen High School (English Medium)	Raja Shivaji Vidyamandir
ENVIRONMENT BUILDING			
R. S. Deokar English Medium School	Raja Shivaji Vidyamandir	St. Agrasen High School (Hindi Medium)	R. J. Thakur Vidya Mandir
WORKING MODEL			
St. Agrasen High School (English Medium)	Raja Shivaji Vidyamandir	St. Agrasen High School (Hindi Medium)	Late Chandrabai Laxman Chaugule Vidyalaya
Eureka Trophy: Pioneer Prathmik School Jitali			



“It was a nice, comprehensive program. We can think of enhancing teachers’ capabilities as well and use their talents to enhance the capacities of the students at large.”

Mr. Chintan Joshi, Covestro-Mumbai, Volunteers Speak



EUREKA SCIENCE FAIR @ MUMBAI



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“The students were very enthusiastic and worked hard on their projects and presentations. Most of them were out-of-textbook ideas and the fair was well organised and a win-win experience for everyone. It was an awesome, recharging experience for me, I felt like I was back to school days and could re-energise myself.”

Mr. Purvang Gandhi, Covestro-Mumbai, Volunteers Speak

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“It helped me to give back something valuable to the young children and students who are the backbone of our country. I experienced a sense of contribution towards the betterment of the society as a whole ”

Mr. Diwakar Gokhale, Covestro-Mumbai, Volunteers Speak

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“It is quite clear that talent has no age and there are many simple solutions available for daily tasks which we as professionals forget, being caught up in routine activity.”

Mr. Avinash Bagdi, Covestro-Mumbai, Volunteers Speak

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“It was an inspiring experience to be part of the programme. The energy and team work of the kids as well as their out of the box thinking to make the world a better place has urged me to be a better person myself.”

Ms. Manali Oak, Volunteers Speak

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“The event was very well organised by our Communication Team. Looking at the enthusiasm of the kids, I felt like motivating the kids more and interacting with them was fun and we learnt so many things like best out of waste.”

Ms. Deepika Obhan, Covestro - Mumbai, Volunteers Speak

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EUREKA SCIENCE FAIR @ MUMBAI



EUREKA SCIENCE FAIR @ MUMBAI



EUREKA SCIENCE FAIR @ MUMBAI





CASE STUDY

“I like being called a young Scientist”

“Awards make us feel good, after all they are the result of the efforts we put in”

Ms. Lata and her students from St. Agresen English Medium School were beaming from tooth to tooth after winning the Eureka Trophy.

The students gave their best performance in all the competitions and as a result of their hard work, they won maximum prizes in all the categories.

On talking about their clear win in all the categories, Ms. Lata says “I was confident when the results were declared because the level of preparation was as such.”

It's hard work and passion they say which makes you excel in what you do and the students and the teachers of St. Agrasen High School proved their win likewise.

But this win did not get to the heads of the students and teachers as they used this as an opportunity to observe the preparation level of other schools and learn from them in terms of preparing more in the future for Eureka Science Fest.

She signs off saying “I would love to participate with more enthusiastic students in the future with better preparation next time.”

EMPLOYEE VOLUNTEERING

Volunteering has many benefits, it helps in providing both mental as well as physical health of the people who choose to volunteer. The social contact incorporated under volunteering activities helps to have a profound effect on the overall psychological well being of the individual and at the same time helps to counter the grave effects of anxiety, stress, and anger experienced generally.

Volunteers from Covestro had participated mainly in the felicitation ceremony during the Science Quiz. During Eureka Science Fest – they had volunteered as a judge for evaluating/assessing the models presented by students.

POSTER COMPETITION

The Volunteers had also participated in the poster making competitions in various schools on the theme “My Planet, My Responsibility” and enjoyed their time with the children while bringing out their creative sides during the event. 26 volunteers from 4 cities of Greater Noida, Ankleshwar, Navi Mumbai, and Cuddalore had participated in the event.

The idea behind ensuring that the volunteers from Covestro participate in the event was to understand how a child and a grown-up volunteer would imagine saving the planet as his/her responsibility. While a child drew posters out of the imagination, the volunteers drew out of experience and the confluence was a beautiful sight that gave hope of improvising upon our current experiences to make the future bright for our young generations to come.

This activity not only helped the students interact with people outside their schools but also helped the volunteers from different areas to come in close contact with the children and schools where the company was working. It gave them an opportunity to come out of the office and company setting to the world of children where a stress-free life is experienced. This experience helped the volunteers relax a bit and at the same time understand the importance of interacting with people apart from their company to experience happiness.

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This was the first time when a poster competition was organized with the employees of Covestro. There was a hesitation in the beginning mainly due to the two hours they were supposed to spare for the competition. Some volunteers requested if they can take the sheets home and some wanted to involve their children in making the posters. However, as the rules were laid down for the competition it was organized at the Covestro office. But the result was mesmerizing. Creativity, imagination, thoughtfulness and presentation could be seen in the posters made by volunteers and justified the theme – My Planet-My Responsibility. I am sure next year we will have a greater number of employees participating in such an event than this year.

Gilroy Correia, Covestro-Mumbai

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POSTER ASSESSMENT BY VOLUNTEERS



POSTER ASSESSMENT BY VOLUNTEERS



WINNING POSTERS

Kavita Arpan Desai from Airoli, Mumbai won the first prize in the poster making competition on the theme “My Planet, My Responsibility.”

Her poster depicted that Mother nature protects the planet and we must protect mother nature. A simple illustration of mother-nature protecting the globe is what made her win. The simplicity of understanding that each one has an unfailing duty to protect the nature and in turn mother-nature would protect us as well.

Rashmikant Trivedi from Ankleshwar bagged the second prize and his poster depicted that if we don't care for the nature now, in the near future we may have to leave our planet and we would only be able to see it from afar and reminisce about the flora and fauna we had and how we destroyed it. The imagination of the child was quite futuristic which gave an alarming message to mankind that it is still not too late to start acting upon conservation of the nature lest we lose it all in the future.

3rd position was bagged by Gilroy Correia from Airoli, Navi Mumbai who beautifully depicted that one needs to bring about a change in his/her thinking in order to see a change in the world.

A young mind has truly understood that a change in thinking reflects in a change of attitudes and thereby reflecting a change in behaviour and practices of the people towards conservation of the planet.

4th position was bagged by Yogesh Sharma from Greater Noida whose poster talked about reduction of pollution, growing more trees, rain water harvesting and avoiding deforestation to protect the environment. His strong message was that if we respect what nature gives us, nature will respect us by giving things to us in abundance.

P. Mathiyalagan from Cuddalore won the 5th position whose poster gave a distinction between the colourless world that man is slowly creating and a colourful world which we all can achieve through doing our bit and saving the planet. A beautiful message from a young boy, depicting that the world can be a colourful place if we all want it to be and the colours are our efforts, efforts of each one of us that are much required to save the planet and make it a colourful one.

It was fascinating to see that young minds had so many ideas in their minds and through creativity, their imaginations could be known to us in many ways.



EUREKA
Joy of Discovery

Thank you

Thank you for creating an art that spoke things that words could not

Team Communications, Covestro India Private Limited and ARCH Development Foundation would like to appreciate all the volunteers for participating in the employee poster competition.

A big congratulations to all the winners .

POSTER COMPETITION

MY PLANET - MY RESPONSIBILITY



1ST POSITION

Kavita Arpan Desai From Airoli



2ND POSITION

Rashmikanth Trivedi From Ankleshwar



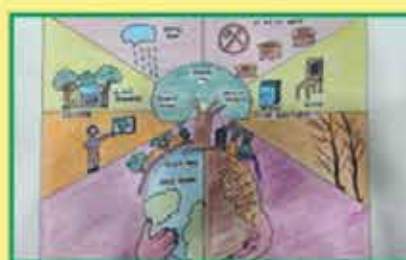
3RD POSITION

Gilroy Correia From Airoli



4TH POSITION

Yogesh Sharma From Greater Noida



5TH POSITION

P. Mathiyalagan From Cuddalore



SECTION 3

MEASURING IMPACT

BWL has not only ensured to develop the infrastructural facilities in the schools but over the period of time it has made it a point to reduce the inequalities faced in the education sector especially in the rural areas when it comes to availability, accessibility and quality of resources in the right quantity to all the students.

The introduction of BWL has helped the schools to function in a better way when it comes to delivering of effective pedagogy for Science related subjects. The BWL has not only been useful for the students but it has also helped the teachers to improve their capacity and skills to teach the Science topics in an effective manner and which has motivated them to include more scientific content in their teaching making the entire process of teaching and learning more interactive.

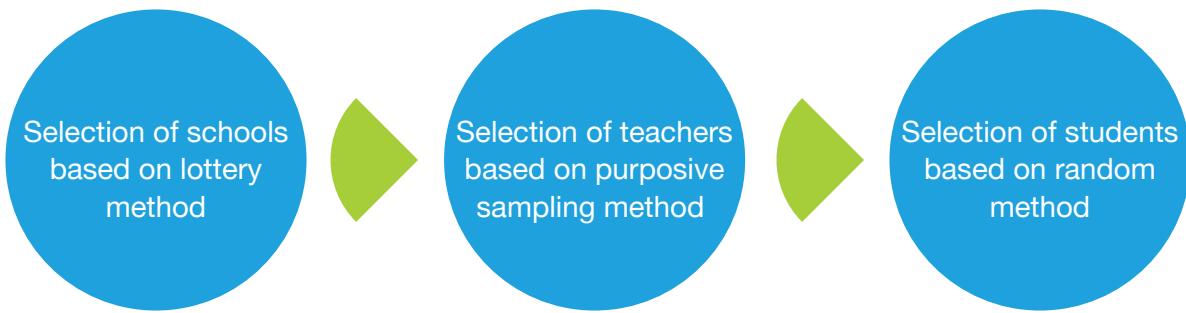
The success of BWL can be measured by taking into consideration the number of students opting for Science stream over the years since its inception. BWL has played a huge role in benefitting the students in developing their scientific intellect. Students are now motivated and confident which helps them to take more part in several science related competitions and also now they don't look Science as a tough subject but something as a practical and engaging subject.

Three years back BWL was started in the schools to improve scientific temperament amongst the students and teachers and thus it became vital to assess the impact that BWL has created in the schools from various strategic perspectives. To measure impact, old and new schools both were taken into the purview of assessment.

METHODOLOGY

As BWL has been executed in almost 50 schools across the cities of Greater Noida, Cuddalore, Ankleshwar and Navi Mumbai, efforts have been to include maximum number of schools in this study to find the overall impact that BWL has made on all these schools.

Using a random sampling method, the schools were selected from a list of old schools where BWL was functioning for last three years and new schools where the lab was established one or two years ago. From the list of given schools, random schools were selected and teachers teaching in the secondary sections associated with BWL were selected using the purposive method of sampling for data collection.



Students from classes seventh and eight who had won in competitions organized under the program were selected on a random basis.

Once the Selection of the samples was done, appointments were sought to conduct the personalized interviews with the school teachers and the students. Since the schools were on a break due to the lockdown as a result of the Covid-19 pandemic, telephonic interviews were carried out with the respondents at Greater Noida and Mumbai location. In Cuddalore and Ankleshwar data was collected through in-person meeting before the lockdown was announced. Efforts to maintain confidentiality and uphold the dignity of the schools, teachers and the students were made during the process of data collection.

STRATEGIC AREA-BASED FINDINGS

1. OUTREACH OF THE PROGRAM / ACADEMIC IMPROVEMENT / SYSTEMS

The Brighter World Lab Project was conceived with an idea of imparting science education in the minds of the children with a major objective of making science engaging and fun-loving and mostly, to foster active learning.

The project started with putting forth a few objectives that were sought at the time of initiating the project. Strategic focus areas were developed to help reach the program objectives which ranged from infrastructural facilities to capacity building of the teachers engaged in the implementation of the activities under the BWL Project.

Over the years, since its inception, BWL has not only ensured infrastructural facilities for the labs but has also helped in viewing science from a different perspective of it being engaging and interesting at the same time.

To measure the impact of BWL over the years, strategic focus areas were designed and assessment of the program was done to identify whether the said goals were achieved or not.

A. OVERALL COVERAGE OF THE BWL

Initially BWL was started only in a limited number of schools. The plan was to start the labs on a pilot basis in selected schools to understand its impact on the teachers and students and how well it is accepted by the involved stakeholders.

During the first phase BWL was introduced only in 10 schools across 4 locations however no other activity was carried out in the first year. Later the concept of BWL was scaled up to ensure that the project reaches maximum schools and over the years more students get benefit out of it. In the year 2018 to 2020 maximum number of labs were established covering 40 schools across Greater Noida, Ankleshwar, and Mumbai. The expanding outreach provided the girl students with equal opportunity to participate in activities associated with BWL which helped them to realize that Science is not a boy's thing alone and they can also be a part of it.

The impact of the initially established BWL was such that it ensured more labs were opened in different schools which really needed such facilities to provide the students with a more effective learning environment.

B. SYSTEMS FOR USING LAB

Mostly the schools try to ensure that the students of primary and upper primary get an opportunity to explore and learn the concepts of Science in an easy manner using the equipments available in the lab.

The majority of the schools have kept their labs open for the students from 5th to 10th Grade who can use the lab and learn Science in a more easy and fun-loving way.

Schools having secondary sections also have kept the labs open for the students of higher classes so that they can also avail the facilities in the lab and improve their scientific knowledge with more practical exposure.

Specifically the BWL facilities are not for any particular class of students. But it is for every student who is learning science as a subject in their daily curriculum. The attempt is made to involve every student in order to change their attitude towards Science and make them realize that it is not a tough subject but an interesting one if learnt in the right manner.

Thus, some schools also make the efforts to expose young children from 4th grade as well to the facilities of the lab so that their interest in science develops from a young age itself.

The usage of the lab was planned in a systematic manner where certain slots in the time table were reserved for the classes to use the lab. It was ensured that a minimum of one hour would be dedicated to the BWL period where the children could get a hands-on learning experience through active learning. The majority of the schools had a slot reserved in their time tables to use the lab.

17% of the teachers said that they take the students to the lab as per their fixed time table, 24% of them said that based on the need of the topic the lab was used and 47% of them said that the students are at least exposed to the lab once or twice in a week. Thus the overall usage of the lab was being done effectively based on the need.

C. SCHOLASTIC/CO-SCHOLASTIC IMPROVEMENT INDICATORS

Though BWL and its associated activities have ensured to raise the interest of students in the Science field, other indicators were also observed which reflected the success of the BWL project as a whole.

There were indicators that have contributed to BWL being a successful endeavor among the students and the teachers which spoke volumes of the efforts undertaken under the project. Based on the feedback received from teachers following changes have been observed in students:

Increased Enthusiasm and Confidence:

In all the schools it was observed that students showed great enthusiasm and interest to use the lab facilities. They now eagerly waited for the lab period so that they would be able to work with the equipment in the lab which would help them to relate their theory class with practical exposure. The teachers and students were now interested to try different experiments in the lab and make learning more exciting.

Passive learning gave way to active learning:

It is very well known to all of us that only classroom learning is a boring process and it gradually affects the attention span and the interest level of the students. But when classroom learning is mixed with some practical knowledge it adds more to the value. And this was very much evident in all the schools that now the students learning involvement had increased because of the introduction of the labs. What the students heard in the class they could now see and experiment in the lab. Thus this paved a way for an active learning process in all the schools where BWL was introduced.

Active participation in events and programs:

Since the BWL project does not only focus on building the infrastructure, but it has also incorporated various activities to foster and further the interest of the students in the field of science. Various activities and competitions like skit, poster making, debates, and quiz competitions are held under the broad banner of BWL which aims to encourage students' participation and form a network of young science enthusiasts.

Moreover, the student's exposure to various science activities has also brought laurels to the schools in the form of prizes won by the students. This has not only increased the confidence level of the students but has also helped in raising the reputation of the school overall due to which admissions have also increased.

improved performance in Science Subject:

Because of the introduction of BWL learning has now become more practical in nature which has resulted in improved understanding level among the students related to various topics of Science. Because of the experiential learning students are now more involved in the learning process as a result the overall grades of the students have also improved in Science subject and now they do not see it as a fear but their approach towards Science has changed and they take more interest in it with an attitude to learn the subject more deeply and to pursue a career in that.

learnt importance of team work

Classroom learning does not provide with much involvement of every student. But now as the students use the BWL they conduct various experiments in the lab and discuss more about the topics. Thus the interaction level has increased among the students and they do different lab work together which has taught them the importance of team work. They now understand how one can learn and grow more in a team by exchanging of thoughts and ideas. Also BWL conducts various science related competitions in which the students take part in teams. Thus the students have now learnt to work in teams.

Increased grasping power and IQ level

There has been a substantial improvement in the grasping power of the students related to concepts of science in class. The students have become active learners in their learning process and thus this has given way to their understanding as to how they can learn better.

This has been evident in the grades of the students which have substantially increased since the advent of the labs.

2. ENGRAIN CAPACITY AND SKILLS OF TEACHERS

IMPROVED TEACHING METHODOLOGY

In order to ensure effective implementation of BWL the teacher training program was made an important aspect of it. The Labs cannot function properly if the teachers handling it themselves do not know how to operate it. Thus before the setting up of the labs, the teachers from various schools were trained on how to use the labs, the teaching approach to be used, and various practical methods that can be used. Thus this was an eye-opener for the teachers to understand how to mix classroom learning with a practical exercise which enhanced their professional growth.

In the words of the teachers:

“Learning like a student was fun.”

- Ahmad Rasid
Limbada, Pioneer
school, Ankleshwar

“Understanding a different methodology to teach concepts in a fun loving manner is very important for a heavy subject like science.”

- Sujitra Rashmiben, Kharod
Anjuman High school,
Ankleshwar

“Teachers get a chance to upgrade their skills which is very important.”

- Ramkrishna Rajaram
Gorad, Raja Shivaji
Vidyamandir,
Mumbai

“Activities under the BWL must also concentrate on teachers where we can participate and enhance our skills too.”

Vinayagam B, GHS,
Periyakuppam,
Cuddalore

“When teachers have a clear idea about how to use the models, it becomes all the more effective to teach the students.”

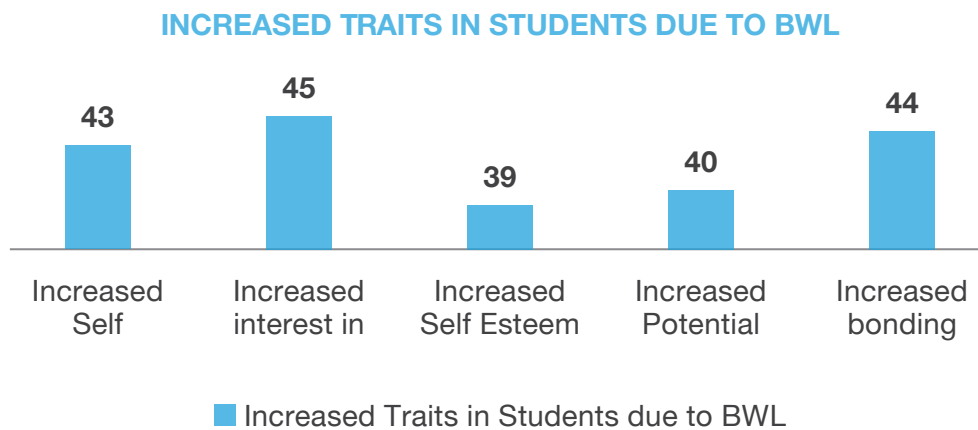
- Rajveer Singh, Chaudhari
Keshram, Greater
Noida

The reflections of the teachers are a testimony that BWL training has helped them professionally learn about the skills and the delivery concepts of teaching pedagogy which can make science fun-loving and engaging.

3. PROVIDE STUDENTS AND TEACHERS A PLATFORM TO EXHIBIT AND EXECUTE LEARNING THROUGH CUSTOMIZED MODULES

50 teachers covered under the study were requested to provide their feedback about the changes they have observed in students post attending/participating in various competitions

A) INCREASED TRAITS IN STUDENTS DUE TO BWL



The aim of BWL was not only to improve the scientific knowledge of the students but also to bring about an attitudinal change in them towards this subject. The aim was not only to help the students achieve higher grades but also to develop their personality in a positive manner

Majority of teachers said that now the **interest of students in the Science** subject had increased. Due to the introduction of BWL, students would wait for the Science period so that they could explore more of Science through practical experiments in the lab.

Increased bonding between the students and the teachers was another change that was observed by the teachers. Often, there is a sense of fear from the teachers in the minds of the students due to which there is apprehension faced during the teaching-learning process, however, BWL has helped in making the teaching and learning process and interactive one due to which the teacher and the student bonding has increased over time and the process does not take place in a vacuum.

BWL and its associate activities also increased the **self-confidence and self-esteem** of the students. Participation in various competitions and representing the schools have helped the students a lot in shaping their personalities. BWL has created a positive attitude amongst the students towards learning and also has given them the confidence to exhibit their knowledge at various platforms.

Thus BWL has not only helped to improve the performance of the student in the curricular performance but also in co-curricular activities.

B) MODELS MOSTLY USED:

Models of the human body, plasma, solar system, optic kit, Newton's disc, and different models of biology were used the most by the students to learn different topics. The students were more involved and active when it came to learning with these models and it was easy for them to relate with their daily lives. The students got a better conceptual clarity when they were taught using these models. Also, it was observed that there were not many models related to Chemistry which should also be added in the labs

4. FEEDBACK & TESTIMONIALS OF VARIOUS STAKEHOLDERS

The overall rating of the BWL program was positive which showed that teachers and students enjoyed engaging in BWL and its activities alike.

Among all the activities of BWL the Science Quiz were the one which was the highest rated program. This is because it is the most engaging and interactive activity for the students and the teachers which provides them with an opportunity to learn more about Science.

Eureka science fair was the second most important activity under the BWL banner. According to students and teachers, Science Fairs provide them with a platform to display their scientific knowledge. In such fairs students from various schools take part thus it is an excellent opportunity for all the students to meet and interact with new people and to expand their knowledge in the field of Science.

Teacher training acted as an important refresher course which helped the teachers not only to enhance their knowledge of Science but also gave them an opportunity to self evaluate themselves and find out which professional areas they need to develop more. It gave them a platform to understand various methods of teaching and learning which they could adapt to improved learning.

Poster making added a creative side to the students' capacities and gave them to view science from a creative angle.

Volunteering on the other hand was introduced to act as a bridge between the students and the outer world. Volunteers from various fields could interact with the students and give them a reality check. Volunteering breaks the daily boredom as the students and teachers can meet new faces and interact with them on various topics which will help in the overall knowledge generating process.

5. IMPACT OF VOLUNTEERING

Under the BWL project volunteering activity was also carried out in the older schools as a part of it. Individuals from various fields of society were encouraged to participate as a volunteer in various activities under the BWL project.

The aim was to create an opportunity for the students and teachers to interact and work with an outsider, which would give them more opportunities to learn and also through the volunteers to motivate the students to take up Science as a stream for higher education.

Various discussions and interactions that happened through the volunteering process helped the schools to identify the learning needs and the potentials of their students which can be developed furthermore. The opportunity to volunteer not only helped the schools to learn more but it also helped the volunteers at an individual level to know much about the education system, school management system, students ability, etc. which gave them an insight as to what all they can also do as a volunteer to develop the education system.

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It was indeed a pleasure to have Mr. Divakar Gokhale, Head – Business Development of Polycarbonates as a volunteer in the Eureka Science Fair under the BWL Project. The main motive behind introducing the volunteering aspect was to provide the students with a chance to interact with experts from outside who would motivate them to do better in life. When students meet people who are professionally doing well in their life it encourages them also to dream big and do better. Mr. Divakar helped to fulfil this aim to a large extent by interacting with the students and by giving them the confidence to do well in their life.

During the Eureka Science Fair, Mr. Divakar participated as a volunteer helping in organizing the event and also interacting with the students providing them with a lot of insightful thoughts. When asked about his view of the Science Fair, Mr. Divakar shared that it was a unique approach to connect young students with Science and Technology and also to motivate them to pursue Science for higher education. Mr. Divakar shared that the most important thing was such an initiative gave the students a chance to interact with people working in industries which gave the students more practical knowledge.

On a personal level, Mr. Divakar shared that this opportunity helped him to give back something to society. It gave him a sense of contribution to the organization's efforts and also for the betterment of society. He shared that it was a learning experience for him to see how teachers are leading with examples and that it was indeed a pleasure to see that we have so many bright brains in India.

Happy with the overall experience, Mr. Divakar says that he would love to come back again as a volunteer and be a part of other activities like lectures, creative events, competitions, etc. under the BWL Project.

Mr. Divakar Gokhale, Volunteers Speak

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6. DIAGRAMMATIC REPRESENTATION OF COMMON FINDINGS



DISCUSSION

BWL has not only ensured infrastructure availability in the schools but over the years has also made it a point to reduce inequalities in the education sector in terms of access, equity, and equality of resources.

With the advent of BWL, the schools are able to function in a proper way in terms of delivering effective pedagogy in science education.

The BWL has also enhanced the capacity and skills of the teachers in terms of delivering scientific content in a holistic manner and increased their motivation towards teaching science in an effective manner.

BWL has proven to be beneficial for the students as well as there is a steady increase in the number of children taking up science over the years since its inception.

The children have also shown zest and enthusiasm in the participation of various activities undertaken under BWL. Science to them is no more a tough subject, instead is a fun-loving and engaging subject.

WAY FORWARD

The change in the attitude of the teachers and students shows how the BWL Project has created a positive impact in all the schools where it was implemented. Over the years from the start of this project it has brought an attitudinal change in the students and teachers towards Science. The students are now more confident about learning Science compared to how they felt before the project, they are now more eager to take part in various competitions which are related to the Science field.

Similarly, now the teachers are also finding the teaching and learning process more interactive and involving. The BWL project has altogether given a new approach towards the Science subject in these schools and also in shaping the character of the students. In such a scenario it becomes a necessity to look for ways to take forward this project so that more and more schools can avail the benefits under this project which will help in reshaping our education system.

AWARENESS OF PARENTS AND COMMUNITY

It is a must to make the parents of each student aware of what their child is doing and learning in the school. If the parents are aware of the innovative methods used in the schools and if they know how much their child is learning and is interested in the subject, this will also help the parents to motivate their child to learn and perform better. Thus every individual in the community should be made aware of the importance of Science education for better acceptance of this project. Regular PTA meetings, local community gatherings in the school, involvement of local authorities should be ensured to make the whole community aware of the importance of this initiative.

COLLABORATION WITH GOVERNMENT DEPARTMENTS

A proper collaboration should be planned with the Government Departments like the Education Department or the Department of Science and Technology whereby the outreach of the program can be scaled up. Schools can register and participate in Government programs like INSPIRE Science Camps funded by the Department of Science and Technology which will provide the students a great platform to learn new things and also showcase their own skills and talents.



OUT OF SCHOOL ENGAGEMENT FOR SCIENCE

out of school engagement with Science and Maths teachers can be learner incentive, guided by the interest of the learners, and can be largely open-ended. Such out of school engagement can stimulate curiosity and enquiry in the minds of the teachers and the students alike through activities that can supplement classroom learning.

Learning science and maths in a class confined situation only get boring with time and it is quite essential to give them an exposure that involves various people from the fields of science and maths. Eureka science fest proves to be very important out of school engagement for the students and the teachers which helps in increasing their skills and capacities in their respective fields.



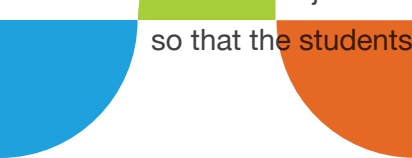
INCULCATION OF ALL THE DISCIPLINES OF SCIENCE

Mostly the school curriculum of Science subject covers basic topics related to Physics and Biology only; this limits the student's exposure towards other streams of Science. Students are not much aware of the other branches of Science which include Chemistry, Astronomy, Geology, etc. Thus the BWL project can be a platform where students are introduced to topics that are not covered in their textbooks which would build more interest in their minds towards learning of Science. The more exposure they get the more they would come to know about the opportunities they have in the vast field of Science



TRAINING OF SCHOOLS

The schools which already are part of the BWL Project can take up a role to train the school management and teachers of other schools in order to promote innovative ways of teaching and learning Science. The schools which are already part of the BWL project can share their experience with other schools in their vicinity to promote learning of Science in an engaging manner. This will create an interest in the teachers and the students as well. The existing schools under the BWL project can partner with new schools to encourage student involvement in Science subject and these schools can arrange for Science field related inter-school competitions so that the students get more practical exposure and are motivated to be a part of it.





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