

## infinite possibilities of learning



#### Highlights of the month

- Launch of Education 3.0 by lighting of diyas by each and every student to celebrate their individuality and potential
- Sparking multiple senses in kindergarten students
- Designing projects lead by the curiosity of lower primary classes I and II
- Integrating subjects through filmmaking sessions for classes III to V
- Focus on astronomy for intellectual development of classes V to VIII
- Survival Camps for boning life skills of classes II and III
- Educational trip to a Village for classes I to III



### Expanding the Classroom beyond boundaries

Education 3.0 is India's first-ever program of its kind. It integrates experiential learning into the school's regular curriculum, and opens up avenues for students to understand subjects topics from real life situations.

The program is led by the their natural curiosity to explore, experiment and create. What they learn in the classroom, they also experience hands-on, alongside developing the essential 21st century life skills of collaboration, leadership, creativity and empathy.

We invite you to know more about the program through this brief summary on the projects and activities conducted by our students in the first few months of the 2016-17 academic year. You are also most welcome to take a look at the new experiential learning lab in the school and witness how the project-based learning sessions are make it possible for children to learn various subject topics in an interconnected manner.





## Learning through project work

The various projects started with students over the past two months were based on the interests of the class as a group.

The objective is to create an integrated environment and develop all aspects of the children's personality.

The group environment is mainly divided into two components. The first is aimed at helping the inner core of each child to come to the foreground. The second component aims to perfect and develop their mental, emotional, social and physical nature.

Each area consists of several sub areas. More than one aspect of the child is involved and progresses in a single activity. The aim is to bring out the potentialities latent in each child.

# Making the classroom a place of discovery and joy, and child's whole environment a classroom.

We started our Education 3.0 journey this academic year for students of classes I to VIII with the aspiration to make learning more child-centric as well as more joyful, relevant and meaningful for them.

We have observed that the energy level of each and every group is very different — mentally, physically and in their hearts. Their energy guides them or drives them in any direction. At times, one may see them acting as a violent stormy ocean, but much under the depth, the stillness, the calmness hides, glimpses of which are caught when they are guided by their best self. The strong personalities are waiting there to manifest and to give them the right direction. Allowing this to happen is a great challenge for all of us.

#### Hence, our efforts are focussed on ...

**Self Awareness**: Children are being encouraged to be aware of their actions and reactions. They are provided opportunities to express their thoughts and feelings, their likes and dislikes, and what to follow and what not to follow. Though much work still needs to done in this area, collected efforts are helping them to settle down in the group.

**Concentration**: Concentration is absorption and focusing of all the energy around the central being, whereas absence of concentration expresses the opposite tendency, that is, dispersion of energy. Children are slowly developing their faculties of concentration in different areas like reading, writing, hand skill related work, listening to stories and instructions. They are working at becoming more focused, alert and active. A sense of independent working is also gradually seeping in. Along with this, a lot of dispersion of energy is also seen in children, where they need further guidance to concentrate in various constructive areas.





### The Beginning

DARKNESS TO LIGHT! The first session of Education 3.0 opened up with each student lightning a diya as an ode her or his individuality and potential. Then they were introduced to a unique birthday song that celebrates freedom of the mind and birth of creativity and new ideas in the children.

This was followed by a round of expressing their interests, and a discussion on how their interests will be integrated in the new experiential learning curriculum.

Children, with their innocence, imbibe both positive and negative energies from their environment. Its reflection is seen in their mental, social, emotional, physical and inner learning. Their energy can guide them or drive them in a random direction. Therefore, the experiential learning sessions begin with various energiser games to channelise their energy in a constructive direction.

Finally, the students worked in groups to set their Education 3.0 behaviour norms, which act as a constant reminder during the sessions and help in bringing the group back to work when they are distracted. **Observation**: By their very nature, children are keen observers. With the growth of the mind, they begin to observe, experience and explore the infinite wonders of the universe; the change of weather, the reflection of light, working with friends. The group environment in the experiential learning class is encouraging them to understand the topics by raising questions, drawing their own conclusions on the different occurrences that they observe and experience in their day-today life.

**Imagination**: Most children take interest in storytelling and creating new stuff. They are making efforts to weave original stories and share them with the whole group. Various imagination related activities were done while working on different topics. Glimpses of these are seen in their story writing, working on models, watching movies, experimenting with logics and much more.

**Thinking**: To bring alive children's thinking process, they are given extensive opportunities to create things with their own hands or create stories or songs or drawings, which most of them enjoy a lot. Through this, they can relate their past experiences and knowledge and create a mental picture as they listen to a story or see anything outside or play together. When they hear any story or poem, they are also encouraged to comprehend the essence on their own.

**Verbal expression**: Children are gradually opening up and becoming more expressive about their feelings and thoughts. They are guided to articulate better. At times, they talk so much that one feels the need to help them to become quiet. Direction needs to be given for meaningful interactions and expressions. They need to understand with what volume level they have to speak in different situations.

**Group dynamism**: This is an important aspect for both individual as well as collective living. It reflects on the physical, emotional, mental as well as the inner stability of a group as they grow together in a given space.

Therefore, the effort of our educators is to enhance peer group interactions and help students grow in harmony and awareness through various life skill games. Though, each of them has different interests and preferences, they all are working together to face challenges and flower in the space and with the people around them.



Lower Primary experiential learning curriculum is fuelled by the natural curiosity that children exhibit at this age. Children share ideas and experiences, and develop a sense of community and discipline through interactions with nature, people, objects and the environment. They explore and investigate, consolidate and connect with what they learn, ponder over and question it, and then demonstrate their learning in multiple ways.

#### **Project: Knowing our surroundings**

In how many ways can we observe our surroundings? One should have the ability to take in the surroundings and sort out the important stuff, to be aware and to be vigilant. That's why, when students entered the Education 3.0 lab, they were first asked to form a circle and go around the room, and carefully observe all that they can.

As they related their observations, the educators guided them to add different parameters to their observations, such as colour, shape, smell, singular/plural, shinny/dull/smooth, long/short, living/non-living, plants/animals/birds/human being, etc.

Afterwards, they worked in groups with a variety of material, such as duster, ribbon, pencil, smiley balls, crazy balls, and marbles. Before seeing the object, they observed the items with their senses—feeling with eyes closed, smelling, and listening to sounds. Students loved the activity and responded with much enthusiasm, and were also introduced to new words, like whizz, smooth, smoother,



smoothest.

#### Project: Creating your own musical instrument

Music is favourite of all. And creating music is one of the major interests among students of this batch. This activity was therefore designed to help them explore more about music. They were asked to close their eyes for 1 min, while educators produced sounds by hitting a spoon on four different glasses containing water at different level. After

listening to the sounds carefully, they opened their eyes and explored the 'jaltarang'. Then each group made their own jaltarang and tried their hands at making music, all along grasping how the sound changes with water at different levels. Student enjoyed this activity very much and didn't want to stop the musical ride!

## Project: How well do we know about colours?



We see so many colours in our surrounding. But ever imagined what if there were no colours? To help

the children explore and 'feel' colours, a series of activities related to colouring were conducted. The concept of colours was introduced through a discussion on seasons. Most said that monsoon was their favourite, with rainbow as its most exciting part. So they were given a puzzle to work in groups and piece together a large rainbow. Then they drew a rainbow and named its seven colours. They were also introduced to the term VIBGYOR. Finally, children spoke about various things of different colours that they observe in their daily life.

#### Project: Making a tie and dye masterpiece

Tie and dye activity was introduced as an extension to the colours topics and provide an opportunity for children to work with colours and create something of their own. They first mixed haldi, roli and indigo to form yellow, red and blue colours. For honing their fine motor skills, they worked at tying marbles in the cloth with a rubber band. Finally, each one of them dyed their piece of cloth in red, yellow and blue colours. After five minutes, when they untied the rubber bands, voila! There was much joy in the room as they observed different patterns formed; it was a moment of excitement and pride.

#### Project: How does water travel?

Working further with colours, the essential science concept of water's nature to flow due to pressure was demonstrated. Using a magic-show like set up, students explored how to make new colours by mixing primary colours through water travel from one glass to the other. Red, yellow, and blue colours were placed in three different glasses, along with two empty glasses between them. Tissue papers were used as a connecting channel for the water to travel from one glass to there other. After some time, just like magic, the empty glasses were getting filled with new colours; Red +Yellow=Orange, Red +Blue=Purple, Yellow +Blue=Green.







Film making includes different stages in a dynamic process where the project is completely designed by the students. It involves a number of stages including story idea, scriptwriting, casting, shooting, sound recording, editing and screening. All along, it integrates various important topics from Science, Mathematics and Language. For classes III, IV and V, although the film-making process remains the same, the depth and complexity of the of subjects topics increases according to the students' abilities and the syllabus.

#### What is a film?

As students entered the Education 3.0 lab, they were welcomed with various paper birds hanging from the ceiling, sound of birds chirping, and even live white pigeons and parrots! Then a short video clip from 'The Bee Movie' was played. After that, they watched a 3D clip of the 'Little Dino' movie using 3D glasses. They observed the difference between 2D and 3D movies and were asked to discuss the difference between animation film and live-action films.

Starting the preparation to make their own stories, students discussed and listed the steps of filmmaking and excitedly shared their ideas on sound, camera, story, actors and location. As the first step, they then focussed on writing a story for their film.



#### What is a story?

A story is divided into 3 parts – beginning, middle, and end, and includes characters, their characteristics and dialogues. The students worked with the educators to enact the story of 'A Lion and A Rabbit' while focussing on clarity of words, facial expressions and gestures. They also discussed the concept of beginning, middle, and end, and the moral of the story. They were also encouraged to speak about characters and name the characters of the enacted story.

#### Write an original story, and choosing one for the film

Writing an original story is crucial as it helps the child clearly formulate the message he/she wants to give to the audience, and understand how to build characters and their background. This exercises immensely develops thinking skills and creativity. To some it was a surprise how children came up with some wonderful original stories as per their individual levels of understanding of the world.

Since all original stories of a group could not be filmed, students were encouraged to assess the stories of their group members as well as their own stories on their individual sheets of paper. All groups used standard story-writing criteria for assessment and represented their scores in mathematical graphs to choose the most suitable story.

For this, they were guided to create a live pictograph. Each group stood in one horizontal line facing the rest of the students. If in their assessment sheet, the first group member scored 3, then three students from the class formed a line in front of that group member. If the second group member scored 2, then any 2 students from the class lined up before him...and so on. Thus they formed a mathematical pictograph representing the assessment data.

#### Storyboarding through Comic Strips

Making of comic strip is also an integral part in animation film making as it demonstrates the actual elaborate storyboarding process done for film scripts.

In this activity all student made their individual comic strips by dividing the whole papar into 8 equal sections, or frames. Then they illustrated the key scenes of their story, complete with expressive characters, narration and dialogue boxes. This helped them experiment with a very crisp format of telling the same story, and also the concept of frames in moviemaking. In the professional world, 24 frames are required to make a 1 second film!

#### **Dancing on Fractions**

A better understanding of the concept of frames requires the knowledge of fractions. Therefore, to drive the point home, a paper dance energiser activity was conducted. Each students was given a newspaper and the rule was to never step out of the paper while dancing. Every time the music paused, they had to fold the paper into half and again start dancing when music was played. When the age was over with one winner, all students opened their newspapers and observed how each fold represented a fraction.







## **Upper primary (VI-VIII) Projects**

"The universe is full of magical things patiently waiting for our wits to grow sharper."

For this age group, study of astronomy is of the highest value as an intellectual training. No other science so operates to cultivate nearly every faculty of the mind; the memory, the reasoning power, and the imagination all receive from it special exercise and development. By the precise and mathematical character of many of its discussions it enforces exactness of thought and expression, and corrects that vague indefiniteness which is apt to be the result of pure literary training. On the other hand, by the beauty and grandeur of the subjects it presents, it stimulates the imagination. Our projects at this stage of the child's growth aim to give the students an intelligent understanding of the leading facts-- not a mere bookish knowledge of them. Following is a combined description of project-activities conducted with students in two separate batches.

#### How do we exist?

We all exist in this world. But from where, when and how? Students were given an exposure to think and explore about their existence. They came out with amazing answers.

A tarpaulin sheet was spread on the floor. Students filled a balloon with sand and thermocol balls, and inflated it with a pump till it burst. As the sand and thermocol balls scattered over the tarpaulin sheet, students observed this demonstration of the Big Bang Theory, they understood how the moving thermocol balls can be assumed as planets rotating and revolving in the universe.

Students also concluded that the loud sound of the BIG BANG was the beginning of sound.

Similarly, they discussed the beginning of time. At first they first spoke about hour, minutes, and seconds. But when encouraged to think deeper, they arrived at other smaller units of time— microseconds, nanoseconds, and picoseconds. Then the concept of ZERO time was introduced, and gradually the students arrived at the conclusion that time too began with the Big bang.



#### **Exploring our galaxy**

After going through a power point presentation about the universe, the first activity was to get an idea of where we exist in the galaxy. Students were encouraged to write an address of their school building for an alien living on another planet of the universe.

Then, to be able to better visualise how heavenly bodies are rotating on their axis, we brought the students together holding each others hands. Forming a tight circle, their revolved as one body and, on a beep, they broke apart in various directions, observing



that for a few seconds they continued to rotate on their own.

To know more about constellation, educators worked with the students on a planisphere to find the direction of pole star with the help of dube and mirac stars of ursa major. Then, to know the exact direction of the pole star and why its position does not change, each group performed a torch activity. One student stood in the middle with other forming a circle around her. The student at the centre revolved while the educator focussed a flash light on the middle of child's head. Students saw how being in the North makes a pole star stationary. It was difficult concept for the students at first and some more work needs to be done to help them grasp it better.

#### **Exploring our Solar system**

The children had a basic idea of the solar system, but were not aware of the different sizes of planets and distances between them. So we worked with them to 'shrink the solar system' to its smallest proportionate size at which planets are visible, through a solar walk activity. Considering a football as Sun, students took measured steps from the football to place a mustard seed, a grain of urad daal, moong daal, masoor dal and a lemon to representing Mercury, Venus, Earth, Mars, Jupiter respectively.

Then the students gathered at the imaginary earth with hands straight, and observed the real sun using solar glasses. Comparing it with the football sun, they found out that real sun would approximately be of same size, and at same distance from the earth.

They also observed the actual colour of sun as white, not yellow. They came to know that it is harmful for the eyes if we look at the sun without solar glasses.



To understand lenses better, they were provided concave and convex lenses to observe their working and differences in the images formed.

#### **The Earth**

Each group of students worked with a bowl full of potters clay to make a model of earth as they imagined it, and feel how earth must have been formed in a sphere shape. Then they were instructed to slice the clay models from

the centre and observe the hemispheres and the equator. To understand the size of the earth, they tried measure the circumference of a globe using a string. Then, using the exact figure of earth's diameter (12756 km), they calculated the radius of earth, and then the circumference of earth. They also came to know that Earth is tilted at an angle of  $23.5^{\circ}$ .

Following this, students discussed whether we are still or moving. They realised that although we are sitting but since the earth is moving, we are also forever in motion. Then students were provided spinning tops and bay blades to observe the basic movements of earth—rotation, revolution and wobbling were explained.

What is the speed at which we are moving? Students found the answer by working with the formula of speed for earth as circumference of earth divided by the time taken to complete one revolution(24 hr).

Now, what are the imaginary lines on Earth? Every location on earth has a global address. Because the address is in numbers, people can communicate about location no matter what language they might speak. A global address is given as two numbers called coordinates. The two numbers are a location's latitude number and its longitude number ("Lat/Long"). For familiarising students to this concept, the educator explained the calculation of longitudinal lines with the help of a protractor and 'akaar parivaar' tool kit. Prime Meridian / Greenwich meant time was also introduced at the time.

#### From which direction does the sun rise?

We know that the sun rises from the east because that's what the books say. But can we determine this ourselves? As North is determined by the axis around which the earth spins, the Magnetic North is defined by the earth's magnetic field. East is then defined as the direction along the earth's surface that is perpendicular to the north-south axis according to a right hand rule.

To observe it, each student was given a magnetic compass and guided on how to use it. Then, they explored the direction of sun rise by observing a shadow of a stick over a fixed time, and determined direction of different cities using a map, scale and a magnetic compass.

#### Does the moon remain same during all month?

We know about the different phases of the moon. These depend on its position in relation to the Sun and Earth. As the moon makes its way around the planet, we see the bright parts of its surface at different angles.

The students also responded well to the questions in this session as most of them were aware of the terms such as waxing crescent, waxing gibbous, waning gibbous, and waning crescent, new moon, full moon. However, they lacked clarity of the science behind the phases. So every group was provided

with a flash light, a white ball, thread and cello tape. The students made a contracted circle to act as the earth and one student held the flash light to act as the sun. Then the students in the circle tied the white ball with the thread and passed it on to the next person without changing their positions, each time observing that the reflection of flash light on the white ball was not equal during the rotation of the ball, just as it happens during the different phases.





Now a days we take much of the basic amenities available for granted, but without many of them our survival is not possible. What are they?

All the children were asked this question and they came up with different answers, such as water, food (properly cooked), fire, light and shelter.

**Water Magic**: To explain the concept of water impurities and water fit for drinking, each group of children explored five different colourless liquids that looked like water. Then the magical pH paper was introduced. Everyone dipped the pH strips in the different liquids and observed the changes in the colour of the paper, showing whether the water was fit for drinking or not. Children did this experiment enthusiastically and arrived at the conclusion that only one glass of liquid was water fit for drinking as it showed no change in the colour of the pH paper.

**Colour of the sun and its rise**: Students first used solar filter glasses to look at the sun safely and observe its actual colour. They reached conclusion that the sun is actually white in colour, and looks like moon when seen through the solar filters. They also learnt that the sun should not be looked at directly with naked eyes as it can harm our eyes.

Then they derived the direction of the sun's rise. First, they were guided to use a magnetic compass on a flat and stable surface. Then they made sundials by setting a stick into a lump of clay on paper, and marked the shadow of the tip of the stick on the paper. Using the magnetic compass, they then observed the shadow and aligned the metal needle with the North direction, which led them to identifying relative East the direction of the sun's rise.

**How to observe the sky**: We often look at the night sky, but have we ever closely observed it? What we need to achieve this? To answer the question, children worked in groups to make a telescope using lenses and black paper sheets. With those telescopes they then observed their surroundings and the sky. They were really thrilled to make this equipment themselves and the first finding was that a telescope makes the objects look closer and bigger than they actually are.

**My own source of light**: For any adventure trip, we need a torch. So the children used LED bulbs and lithium batteries to make to make their own torches by creating a simple electrical circuit — a foundation for the more difficult physics concepts in later years' syllabus. They understood how both wires of bulb must touch the battery to lighten up. All of them were sure that they don't need to purchase torches from the market anymore!

**How to built a shelter?** Shelter is another essential thing for survival. This activity helped children created their own shelter models while understanding the complex concepts of 3-d geometry and stability of shapes. It is also an excellent example of children's ability to self learn.

They were given nine modelling sticks and connectors and asked to apply their independent thinking skills to create a suitable shelter model. With their own imaginations children created fabulous models of shelter and observed the different shapes that could be observed in the different models. Joining of the sticks in a patterns also helped them improve their motor skills, logical thinking and cognitive skills.

#### Making our own food for survival

The children worked together to build traditional chulhas using seven bricks and sand. Each group was provided with the pans, bowls, and spoons. With help and supervision of the educators, all the students cooked their own Maggie themselves on the chulha, while understanding the safety measures to be taken when working with fire. It was one of the most enjoyable moments for them to savour a meal cooked with their own sweet labour.





How is village life is different from the city life? Students experienced a day in Khuri Khera village in U.P. The outdoor visit is an effective learning medium in which educators and learners co-engage in direct experience and focused reflection, in concert with private personal interpretative processes on the part of the learner, to construct knowledge, develop skills, and contextualise the meaning of the experience that also integrate various subjects.

#### **Farm visit**

Visiting vast farmland and knowing about different crops and their uses. Local farmers also explained the process of farming. It also developed the idea of how we get our everyday food from village farmland. Students plucked, observed and tested various fruits and vegetables from plants and trees and were happy to taste it. They understood that few grow on trees, few are creepers and few are big grown grass.

#### **Tractor ride**

Through fun ride students experienced the benefits of village transportation. They were amazed to visualise the whole group of 58 children accommodated in the tractor at once. They also identified that car is much faster than a tractor. Tractor takes a long time to travel a short distance.



#### **Buffalo cart ride**

Buffalo is a must domestic animal of this village. Students experienced the benefit, strength and other purposes of a bullock through a short cart ride.

#### Interaction with village people

"They are different" that's what a child commented. Students asked various questions to the local people and came to know that village people live on farming but many are living village and going to cities for work. They are also dependent on their domestic pets.

#### **Brick factory experience**

Students visited the brick factory and were amazed to know that bricks are also a part of clay. It is first made in blocks of raw clay and then gets heated up through a very big oven for at least 3 long months. The most amazing experience was that all of us were standing on top of the oven!



#### Aug 2016



To make sure we are connected with the students and our efforts to make the learning process child-centric are proving successful, Ed3.0 team takes surprise and random feedback from the children on a daily basis. We are pleased to provide here a glimpse of what they have expressed...

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Education 3.0 is a program inspired by Sri Aurobindo's integral education philosophy, which believes that every child has within himself all that is required for it to blossom to the full. The educator's job, then, is to be a gardner and create an environment where each seed can flourish. This translates to respect for every child, belief in his/her abilities, and providing opportunities to learn through their natural curiosity to make sense of the world around them. In June 2016, during the summer vacations, this approach was shared with the teachers through an experiential learning activity-based workshop.

The objective of the workshop was to transport ourselves to an Ed3.0 lab session and, just as the children do, do a short project to know how we can create a more student-centred environment.

The session began with a guided visualisation meditation to centre our energies, which was followed by a song to celebrate the uniqueness of each teacher and to recognise that every child is unique. The participants then shared where they spent most of the their time as a child, and then related it with the present day lifestyle of the students. The need to provide students an environment for wholistic development was clearly identified.

To experience which factors create such an environment, teachers then worked together to build a roller coaster using newspapers. Observing themselves as a group during the activity, teacher concluded with the insights that to build a bridge, we need to bring our energies together. To work together, we also need to communicate well with each other.

Then, to ensure we enjoy our work, we need to create a happy environment. Some of the universal elements that make any place happier, calmer and encouraging are smiles, greetings and claps. To work right, we need to prepare and arrange ourselves as a group, be it work division or classroom arrangement. How shall we begin any work? By first planning and strategising. Next? We get the work done! And finally, reflect and connect with the children's experience—or the work is still not finished!





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