



مدرسة امباسادور
AMBASSADOR SCHOOL
INSPIRE INQUIRE INNOVATE



STEAM Newsletter

April 2022

INTRODUCTION TO STEAM

Students were given an introduction to STEAM during their STEAM classroom ;wherein they were given a brief explanation about its importance and application. Students were challenged to design and construct an amusement park (merry go round, swing, seesaw, slides) using STEAM park kit within 30 minutes and display their models. The teams were tested for creativity, innovative design, collaboration, use of elements, time and resource management in their model during the activity.



STEAM IS FUN

In this activity, students were introduced to the engineering and designing process in the STEAM classroom i.e. planning, designing, construction, testing, and modification while performing the various tasks. They were challenged to design different healthy food items using a café set which they thought was good, for people to eat. Students came up with different ideas to show a healthy food plate and constructed various food items from the given materials, by applying their building skills and food knowledge. Students also applied their math knowledge by counting the total number of blocks used for construction.



NUMBER FRIENDS

Students were challenged to construct a number train car set, with different quantities of bricks loaded onto them (e.g. one with four green bricks and the number four brick, and another with six light green bricks and the number six brick) using the number Lego set. Later, they had to place the two number train cars side by side, to compare and count the total number of bricks on each and present their model in the class. In this activity, students learned to count and recognize the number of objects in a set, and match the numbers to the quantities.



AM I ALIVE

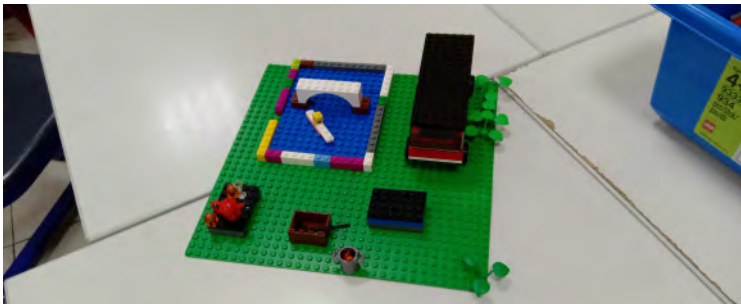
In this fun-filled game - "Am I alive?" The session started with a video on living and non living things and the students were able to differentiate between the two, based on their characteristics. Later they were instructed to plan, design and construct a model of one living thing and one non-living thing, using early simple machine set. Students presented and demonstrated the features of their constructed models. The concept of place values i.e. tens and ones, were understood by the students ,based on counting the numbers of blocks used in the model.



JOURNEY THROUGH THE STEAM

In this activity, students were given an opportunity to discuss and share their experience of the various tasks done in the previous grades, during STEAM classes. Later they were given a task to create a story and build their own model using Lego community starter, to connect to real life and demonstrated their skills like creativity, communication, collaboration, critical thinking and problem-solving.

Students displayed their model in the classroom and highlighted these skills while completing the task.



GEARING UP

In this activity, students were challenged to construct a dream park which included swings, slides, hopscotch, see saws etc. using the STEAM park kit. They explored the idea that machines are made of moving parts, and interlocking gears.

Students became familiar with the functional elements in the set and identified the various movements associated with it. They enjoyed themselves to the core whilst being engrossed in the activity!!



PLACE VALUE BRICK

Students were challenged to design and construct a hands on activity to differentiate between face value and place value of numbers ;by building a car model using community starter set and then setting a price for their car model.

The students showed their creative models, innovative designs, and collaborative skills by constructing car models, using LEGO bricks and learnt the concept of place value from the price value of their car model.



THE WORLD OF PLANTS

In this activity, students were introduced to the world of plants by watching the video which discussed the various parts of a plant, needs of plants as well as the various types of plants. Based on this, students were encouraged to create different plants found around the world, using their Lego community starter set.

Students applied engineering skills like planning, designing and constructing for various types of plants such as shrubs, herbs, creepers, climbers etc. which they could grow in a garden. They created their Lego garden using given materials. Some came up with beautiful ideas of even a tree house in their Green Garden. The students had a lot of fun doing this activity!



INTRODUCTION TO WEDO 2.0

Students were introduced to LEGO education WeDo 2.0 set by watching the video. Later they were given a brief explanation about different parts in the WeDo 2.0 set.

Students were given a task to build their own model and were encouraged to work together as a team to complete them successfully. This activity enlightened the students to understand the importance of developing team building and leadership skills.



MY DAY AT SCHOOL

In this activity, students were inspired to collaborate together, innovate, and creatively design 'My day at school'. They had to construct classrooms, library, playground, cafeteria etc. using Lego community starter set, wherein they had to design and create their school, incorporating the various features of the school, that they loved the most. Students developed their literacy skills by creating a story based on the model designed by each team. They understood the different elements that together make a day at school.



IDENTIFYING PLACE VALUE

Students were challenged to construct 2 types of houses using community starter set in (City and Village). This activity enabled the students to understand how the value of the same house located in a remote part of village will be far cheaper than the same model of the house built in a city.

By setting the value for their house models (city and village) using Legos, students learned the concept of place value thereby helping them develop their mathematical skills and be prepared for real-world application.



MY ROBO FRIEND

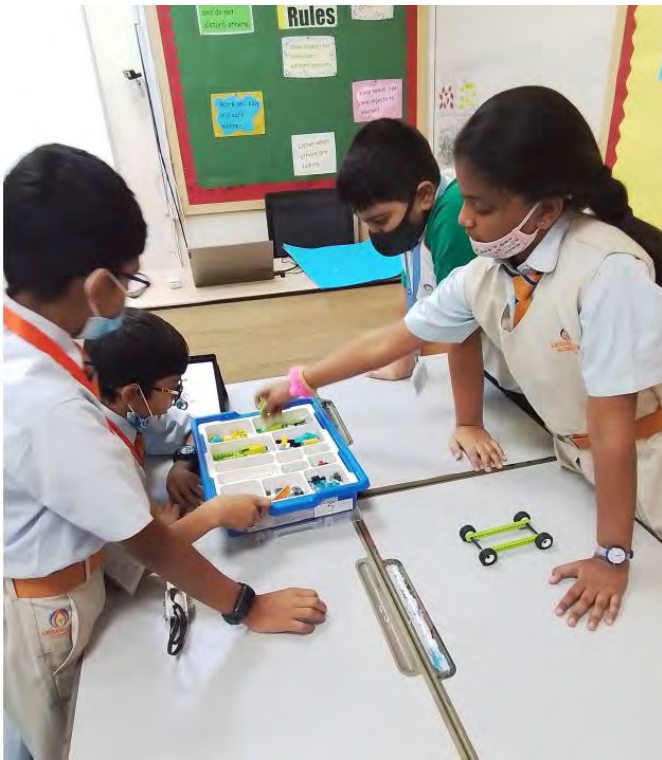
In this activity, Students followed the engineering and designing process (planning, designing, construction, testing, analysis, and modification) to construct a mechanical bot and demonstrate some of its movements ,using gear mechanism. Students used the model to compare the features of living and non-living things. They also analyzed the similarities and differences between the two.

Later they were challenged to modify their model with different gear combinations to understand how gear mechanism works. This activity enabled the students to understand the use of gear in machines. Students developed their mathematical skills to compare the numbers, they used in the gear mechanism to create the movement of bot (Using leg or arm movement).



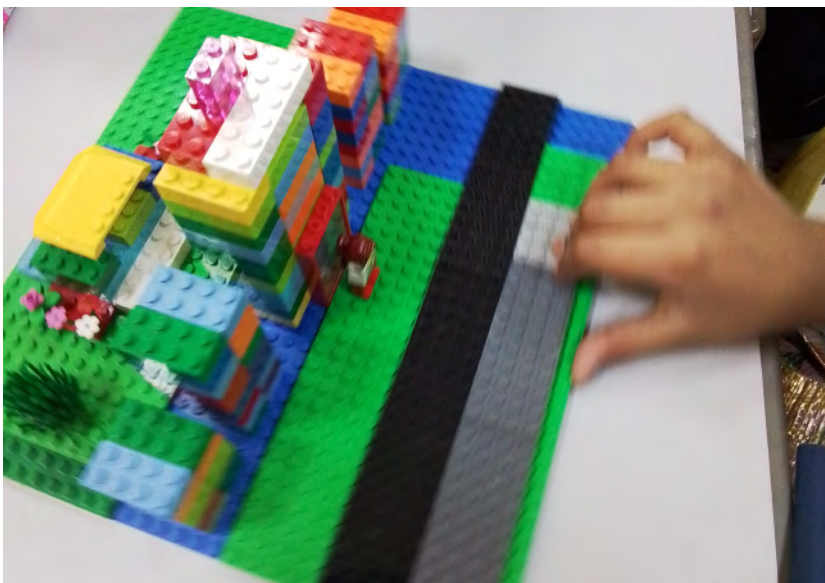
INTRODUCTION TO WEDO 2.0

In this activity, students were given a brief explanation about different parts in the WeDo 2.0 set. Students learned to construct a robot using Lego WeDo 2.0. set and programmed it to move using WeDo 2.0 software.



SUSTAINABLE CITY

In this activity, students used community starter set and engineered a futuristic city model, having environmental friendly building, parks etc.



WHAT TO VALUE – FACE OR PLACE ?

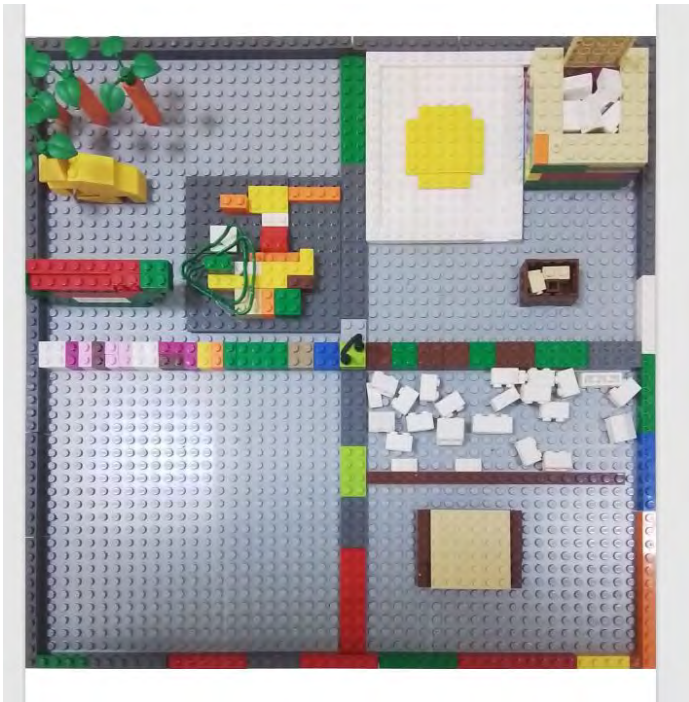
In this activity students constructed a movable house using WeDo 2.0 kit and used the same, to understand how the value(price) of the same house varies if it is located in different countries such as UAE or India.



NUTRITIONAL PLATE

In this activity, students build a nutritional plate using Lego community starter.

They included the five different types of food nutrients such as proteins, carbohydrates, vitamins, minerals, fats and fibers.



INTRODUCTION TO WEDO 2.0

Scientists and engineers can use rovers to explore places where humans cannot go. In this activity students played the roles of scientist and engineers to create a robot using Lego WeDo 2.0 set.

After building the robot the Bluetooth communication was setup between the Lego WeDo application and the robot to transfer the code and then the robot was tested to move in different directions ,to check the working of it.

Students also understood how to transfer motion from motor to the wheels using pulley mechanism and the use of wheel and axle.

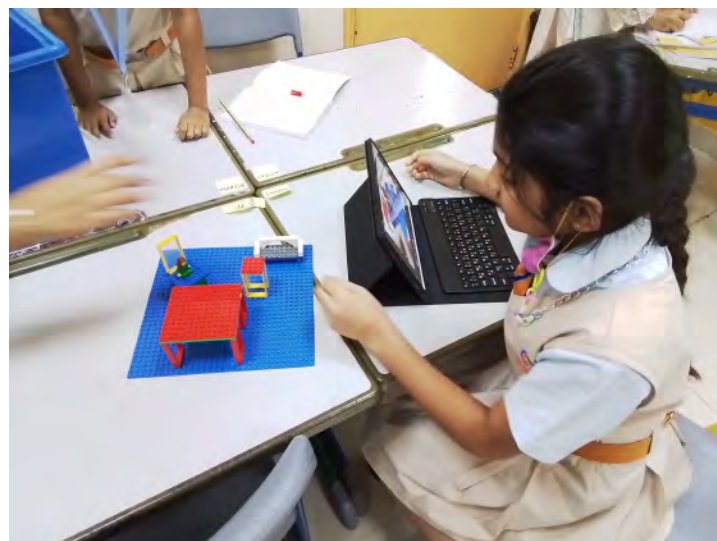


STOP MOTION ANIMATION

Students created an animated movie using the application called Stop Motion Studio.

Teams of four worked as a director, camera man, script writer and an engineer planned a random story to make a movie.

The engineer setted up the scenes and the camera man had taken up the pictures accordingly ,everything was managed under the leadership of the director to finish and then finally shared as .mpg or .mev format to project it on the screen to others.



STOP EROSION

Students created an animated movie using Stop motion studio on soil erosion.

Teams of four worked as a director, camera man, script writer and an engineer set up multiple scene and clicked multiple pictures in the application in series and then converted it into a movie which was then projected on the screen and shared with others group.

They also discovered the different types of soils erosion and how does it affect our lives.



ROMAN WEDO

Students engineered their own a transporter robot and programmed it to move using Lego WeDo 2.0. on the map created by them for the countries such as Rome, Italy etc. that used to followed Roman numerals from UAE. Students explored the distance between UAE and Rome and program the robot to display the international system

Students learned and applied engineering and mathematical skills to explore the different countries followed the roman number system using a Lego WeDo 2.0. robot.

Students created a robot to program and move it on the map created by them and then displayed the distance covered by the robot in Roman numerals.



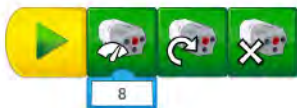
INTRODUCTION TO LEGO WEDO 2.0.

Students took on the role of engineers to learn engineering skills such as building, programming, testing and modifying a robot using Lego WeDo 2.0. set. They discovered the ways that scientist and engineers use robots to explore places where humans can't. Each group had to explain the use of different parts used in the activities.

Communication and engineering skills were observed to further strengthen the skills. Each one had fun in first STEAM session.



Choose Smarthub



PASCO PHOTOSYNTHESIS

The Pasco CO₂ wireless sensor, an award-winning hands-on STEM data logging instrument, was used by students as a scientific researcher to explore the quantity of carbon dioxide in various leaves. They measured the amount of carbon dioxide in an empty container, calibrated it to the given condition, and then utilized the leaves in various environments to see how the rate of photosynthesis and respiration was affected by room light, darkness, or sunlight.



PASCO THERMOREGULATION

How does the temperature vary in different parts of our body? The scientific Researchers explored the skin temperature of different parts of their body using a wireless Pasco temperature sensor and then compare it with internal body temperature.

They predicted, measured, compared, analyzed and discussed the variation in the temperature of their body and concluded their finding and result using Sparkvue application.



EV3 FRACTIONS

The LEGO MINDSTORMS EV3 robot is an ideal tool for teaching students math and science concepts. By having fun while learning new concepts, students remember what they are taught. This is the primary motivation behind the use of EV3 robots in the classroom.

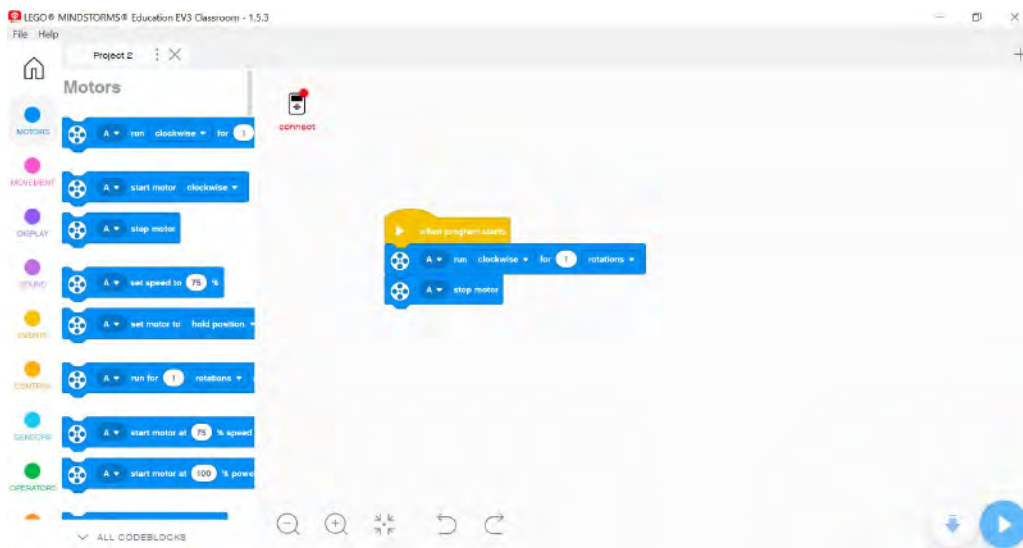
Students as teams of engineers built a Lego EV3 robot using the motors, processor and structural parts and then coded it to move in different directions using Lego coding blocks. They learned to code the robot move with different speeds and for different rotations.



INTRODUCTION TO LEGO EV3

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Students as teams of engineers built a Lego EV3 robot using the motors, processor and structural parts and then coded it to move in different directions using Lego coding blocks. They learned to code the robot move with different speeds and for different rotations.



LEGO CLOCK

Gears are mechanisms that mesh together via teeth and are used to transmit rotary motion from one shaft to another. The principle of gears mechanism is very important for many machines like cars, bicycles, robots and many more. Students as team of mechanical engineers worked to learn and understand the gear mechanism and its affect on speed and power using Lego simple and powered machine. They then used the same principle and designed their own mechanical clock by calculating the gear ratio.



STOP ANIMATION

Stop motion is an animated filmmaking technique in which objects are physically manipulated in small increments between individually photographed frames so that they will appear to exhibit independent motion or change when the series of frames is played back.

Students as filmmakers learned and created a creative animated movie using an application called “stop motion animation” along with Lego characters and props.

They also learned and applied 21st century skills such as creativity and collaboration and played different roles such as director, camera man, script writer and engineer and worked as a team for a common goal.

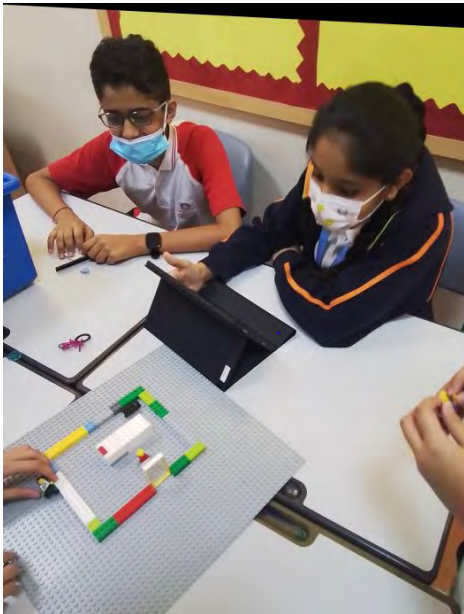


TISSUE ENGINEERING

Tissue engineering (TE) is a rapidly evolving discipline that seeks to repair, replace or regenerate tissues or organs by translating fundamental knowledge in physics, chemistry and biology into practical and effective materials, or devices and clinical strategies.

Students as a filmmaker researched about the topic, analyzed, planned and created an animated movie that can create awareness among people in general in a fun and engaging manner.

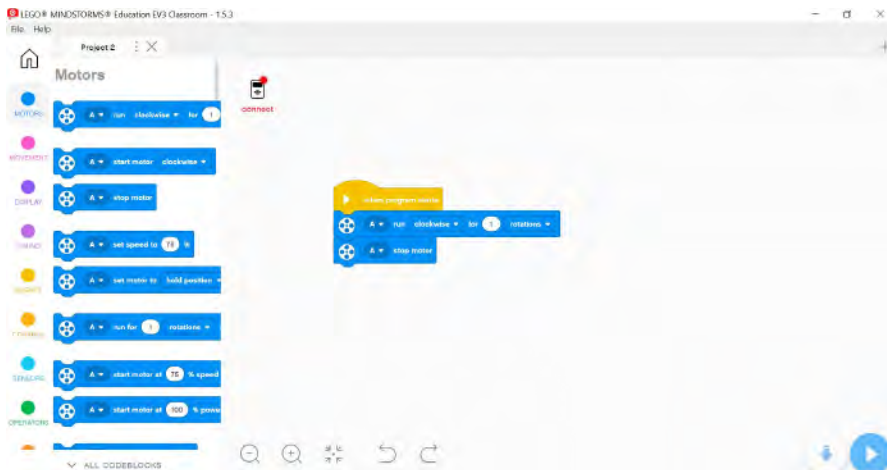
They enjoyed watching each others movies that were showcased in the class on the big screen.



INTRODUCTION TO LEGO EV3

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NERVE ANIMATION

Disorders that affect the brain, spinal cord, and nerves are called neurologic disorders. Disease such as Alzheimer's, Bell's palsy · Cerebral palsy, Epilepsy, Motor neurone disease (MND), Multiple sclerosis (MS), Neurofibromatosis.

Neurologists are medical professionals who specialize in diagnosing and treating conditions that affect the nervous system.

In this activity, students as filmmaker researched about the different nerve disorders, planned and created an animated movie on it for general awareness and then shared it with others groups.

They enjoyed seeing each others creativity through a movie and praised each others work.



THINKABLE CALCULATOR

Mobile application development is the process of creating apps that run on any mobile platform: Android and iOS. With everything you need right at your fingertips, you can track inventory or make instant updates from your phone.

In this activity students as app developers used thinkable platform to develop a basic math calculator that can do math operations such as addition, subtraction, multiplication and division.

They further used the skills of square, cube, square root and cube root along with basic math operators and modified their app.

