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AMBASSADOR SCHOOL
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STEAM Newsletter
June 2022

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WHAT HELPS ME GROW

The activity involved understanding parts of a plant. The students were challenged to design different plant models and explain how the various plant parts ,help the plant in growth and survival. The students used their vivid imagination to construct model and to explain it.
Students identified and labelled the parts of a plant activity using smart devices. They had a lot of fun doing this activity!

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WEEK 2 / GRADE 1
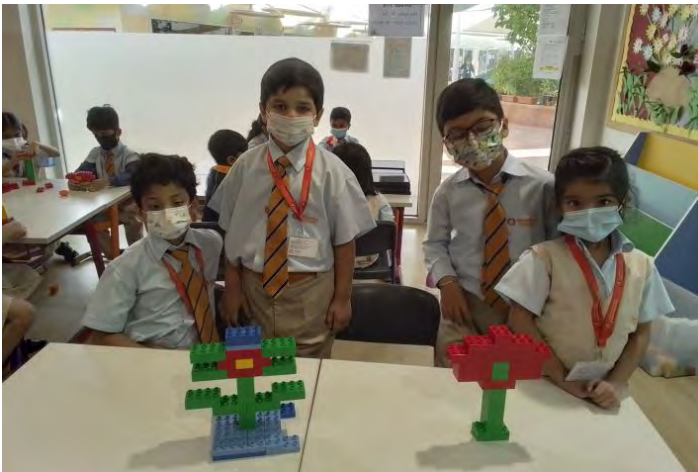
SEED GERMINATION

The challenge to design and construct the stages of plant growth ,begins with understanding the germination of a healthy seed. The students indulged in real-life experience of planting seeds to understand how the different parts of a plant respond to the elements (sunlight, water, air, and soil), which are essential to sustain the growth of a plant. They were given Lego Community starter set, for this activity.

Students analyzed and chose the quality of seeds ,to grow the best plant! This activity helped students learn about germination of seed and they all worked collaboratively.

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WEEK 3 / GRADE 1

BUILD A TOWER

Learning the intricacies of tower building, was the challenge to the students in this activity. They designed and constructed different types of towers for Eg. Burj Khalifa, Eiffel tower, Twin tower using LEGO Duplo education set. They counted the numbers of blocks used in each model and arranged them in ascending or descending order.
Students constructed the tallest, strongest and most stable model of a tower. They applied the concept of ascending and descending order to develop their mathematical skills connecting to real-world application.

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WEEK 4 / GRADE 1

LIFE CYCLE OF AN APPLE TREE

The activity involved the designing and construction of the life cycle of an apple tree using the Lego Community starter set. They were able to understand the various stages and the requirements for the healthy growth of a plant. Students explained it by displaying their model in the class. They enjoyed working as a team.

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WEEK 5 / GRADE 1

WHAT DO PLANTS GIVE US ?

Students learnt the various uses of plants for example: Food - Fruits(apple, orange, grapes, watermelon), Vegetables (tomato, carrot, pumpkin); Wooden furniture - (chair, table, boat), Cotton - dresses from plants . The students used the Lego set very innovatively and the activity helped students learn how plants are important to humans.

We wish all our first graders happy and safe Summer holidays!!

GOT SOMETHING TO CROW ABOUT

Students designed and constructed a mechanical scarecrow and learnt how it helps the farmers ,to scare off and prevent birds and other animals from entering the farm. They used the engineering and designing process ,to find a constructive solution to the given problem.
They also observed and analyzed the working mechanism of gears during the contemplate phase.

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FLYING BIRDS

In this hands-on activity, students constructed a mechanical bird ,which was designed to demonstrate the flapping motion of wings using Lego Early simple machine gears and pulley mechanism.

Through hands-on design challenge, students learnt the connection between the farmer, in the Sam and Sara farm story; mechanical engineering and how nature connects with technological advances.

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THE LEGO FARM

Students were challenged to design and construct their own Lego farm ,using the Lego community starter set. They understood the concept of seed dispersal and how the plants need to disperse ,so that they can grow into new plants.

It was overall a super cool activity!

WHO NEEDS WHAT?

In this activity, Students indulged into real-life experience of planting seeds to understand the parts of a plant and their functions connecting the topic seed dispersal takes place in various agents (wind, water, animals, human, explosion, gravity). They were challenged to design different plant models using Lego community starter set.

Students worked collaboratively and demonstrated the parts of a plant and their functions and giving an example of seed dispersal taking place through constructed plant model. It was amazing to see how creative the kids could be!

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WEEK 5 / GRADE 2

FROM FARM TO THE TABLE

The students were shown pictures of different food items, both from plant and animal source. They were set on the challenge to design and construct different types of food using Lego community starter set. Students had to guess whether it was a plant or animal product, either directly or indirectly and put a red or a green block accordingly. At the end of the activity, students had to count the total number of animal product blocks and plant product blocks they collected and compare results. This enhances their mathematical skill of addition. Students enjoyed themselves to the core whilst being so engrossed in the activity!!

We wish all our second graders happy and safe Summer holidays!!

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WEEK 1 / GRADE 3

COOLING FAN

The activity was about understanding the concept of how winds are generated. The challenge given to the students was to construct a cooling fan ,using WeDo 2.0 set.

Students used WeDo 2.o software for coding and to learnt make the fan turn at different speeds, by changing the number, shown on the Motor Power Block. They also investigated the working of the fan and the different speed levels achieved on adding Motor Power Blocks, successively.

CODING

The students were introduced to the basics and logics of coding. They were challenged to create animation and design a sunny day using Mblock software. The activity was thus aimed at understanding different weather conditions ,using coding.

It was an interactive session with lots of fun, keeping each learner happy and motivated.

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WEEK 3 / GRADE 3

WATER CYCLE

Students were set on challenge to design and construct the water cycle model ,using Lego community starter set. Students discussed the importance of water for life on Earth and how the water cycle involves cloud formation.

This water cycle activity took the students through the various steps, namely – evaporation, condensation, precipitation and collection and what occurs at each stage.

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MAKE YOUR OWN CALCULATOR

Students were introduced to a Mblock programming software which is designed as a tool for introducing code with block programming to students from early years. The ultimate goal of this software was to equip younger students with skills like programming, expression of creativity, problem-solving and critical thinking through technology.

They were set on challenge to make their own calculator connecting the concept of multiplication by programming.

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SOIL - REACHING FOR NUTRIENTS

Students had to collaborate, communicate and bring their problem solving and critical thinking skills forward to execute their model. The session started off with discussing about the layers of soil and how deep each plant or tree need to grow their roots, so as to reach the nutrients in the soil. They were set on challenge to build the layers of soil using LEGO community starter set . They had to also build a tree or a small plant to make the roots which would show how far the plants reach down to get their nutrients based on their size. Finally, they were also given the task to name each layer and present it to the class. Students came up with their ideas in the form wonderfully constructed models.

We wish all our third graders happy and safe Summer holidays!!

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WEEK 1 / GRADE 4

WEATHER EMERGENCY SYSTEM

An Early Warning System for floods, droughts, heatwaves or storms, is an integrated system which allows people to know that hazardous weather is on its way, and informs how governments, communities and individuals can act to minimize the impending impacts
In this activity students as meteorologist worked to create a system that can give warning or alarm before any natural calamity, so that lives can be saved.

Students used SAM labs wireless programming blocks that can be programmed to light a RGB Led or sound a buzzer based on the input from sensor such as light or tilt. Using the blocks they have created a system for detecting earth quack, thunder storm, too much extreme hot climate as well.

They enjoyed working with wireless blocks and loved the idea of creating emergency alarm system using SAM blocks.

STOP MOTION ANIMATION

Animation is the art of making inanimate objects appear to move. In traditional animation, the images are drawn or painted by hand on transparent celluloid sheets, which are subsequently photographed and exhibited on film. Today, most animations are made with computer-generated imagery.

One such method of animation is the stop-motion animation. In this technique, the movement of the character gets recorded by capturing a number of images and then to run them in series. During the activity, the students in a team ,created their own LEGO animated movie using Lego characters and objects. They essayed the v arious roles, such as director, camera man, builder, script writer etc. and learnt the importance of collaboration and team work.

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WEEK 3 / GRADE 4

ANIMAL ADAPTATION MOVIE

The various student teams created their own animation based on animal adaptation. They applied their knowledge of animation learnt from previous week and created their adaptation animation.

The teams selected the environments and the animal living in that habitat. They created various situations based on their experiences and created a movie. The teams showed the migration of animal for business, food shelter etc. and shared their animation with the class.

The team whose animation was done most professionally, got selected as the best animation.

WE DO HABITAT

The surroundings where plants and animals live, is called their habitat. Several kinds of plants and animals may share the same habitat. The presence of specific features and habits, which enable a plant or an animal to live in a particular habitat, is called its adaptation.

In this activity, the students as zoologists studied and analyzed the specific features of the animals based on their habitats. Students picked a particular habitat and based on the feature they selected; they engineered the animal and the adaptations required to survive in that habitat.

Teams created the working model of an animals, tested and then shared their learning with others. In this activity they learned about adaptation, habitat and the different mechanism using Lego We Do 2.0.

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WEEK 5 / GRADE 4

MAP THE UAE

The United Arab Emirates, or simply the Emirates, is a country in Western Asia. It is located at the eastern end of the Arabian Peninsula and shares borders with Oman and Saudi Arabia, while having maritime borders in the Persian Gulf with Qatar and Iran.

In this activity students designed and build the UAE map using LEGO base plate and community starter. Students first calculated the size of the base plate and divide it into 7 different emirates based on their sizes. They then collected the bricks needed to build the map and build the UAE map.
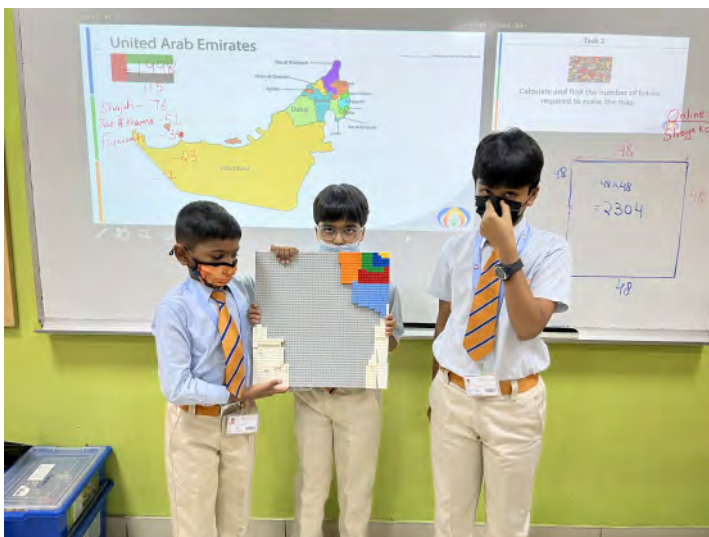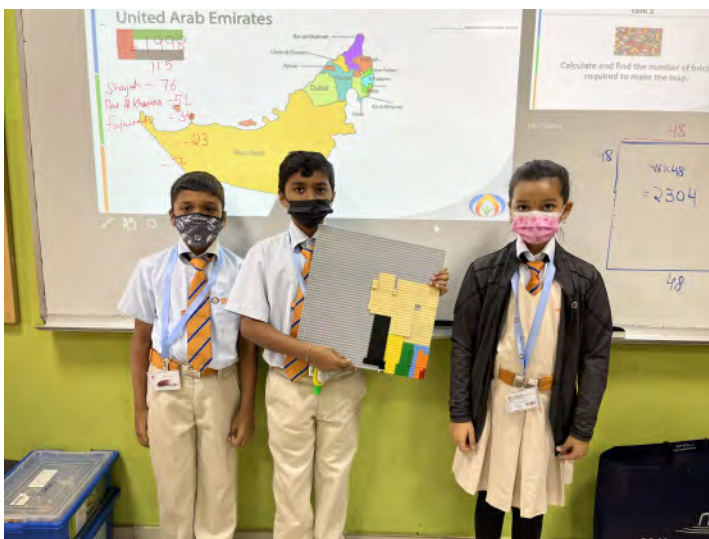
UAE PROBLEMS AND INNOVATIVE SOLUTIONS

Problems are unavoidable in our life. Every day, we are confronted with new challenges, which provides us with opportunities to learn and improve.

The act of defining a problem, discovering the origin of the problem, and identifying, prioritizing, and selecting alternatives for a solution is known as problem solving.

Carbon Footprints, Limited Oil Resources, Limited Water Resources, Waste Generation, Air Pollution, Land Degradation and Desertification, Parking, and Traffic are some of the issues that the UAE is facing. Students choose one of the problems; investigated it, and discussed it as a group, to come up with a novel solution. They created a model to show how the difficulties could be solved.

Building multilevel parking with elevators and conveyor belts, air and water purifiers to be installed in factories and automobiles, under water parking system or parking ship, solar and electric cars or cars that run on alternative energy like bio-fuel cars, and so on are some of the ideas that teams come up with.

Finally, they presented their proposal to the class and responded to the related questions.

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WEEK 4 / GRADE 5

PROSTHETIC ARM

Physical disability indicates any physical limitations or disabilities that inhibit the physical function of one or more limbs of a certain person. Life without limbs is difficult to imagine.

Students in teams worked to solve this problem by building a prosthetic arm for people without hands using LEGO WeDo 2.0. and then tested it to check its effectiveness.
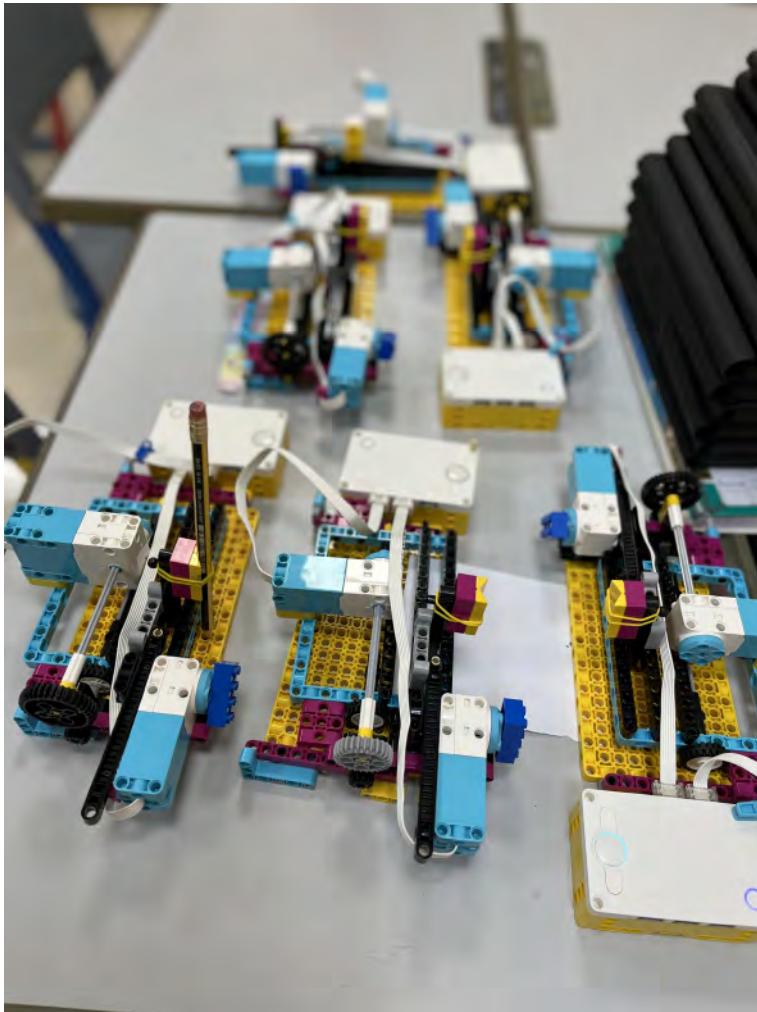
Students created the prosthetic arm and attached a motion sensor to it before programming it to open and close in order to pick up and drop stuff. Students examined the appropriate amount of time needed to open and close before modifying their code to improve the arm's functionality. Additionally, students took part in a tournament where they had to gather objects from one location and carry them to another. The winning team was determined by which teams collected the most things in one minute. The similarity and differences between the human arm and the robotic arm was also discussed.

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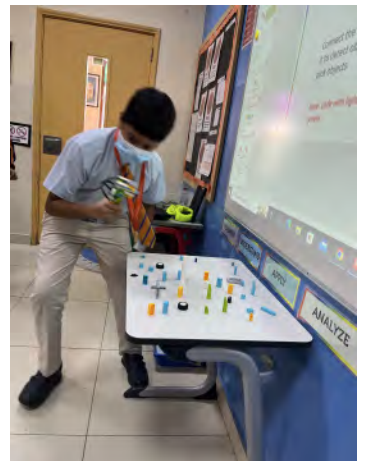
PATTERN MAKER

A polygon is a two-dimensional geometric figure that has a finite number of sides. The sides of a polygon are made of straight line segments connected to each other end to end. Thus, the line segments of a polygon are called sides or edges.

In this activity students worked as mechanical engineers to design and build a machine that can draw pattern. Students programmed and used the machine to draw different shapes and patterns and after testing and drawing shapes and polygons. Teams created their own unique pattern.

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WEEK 3 / GRADE 6

LEGO MOVIE

Filmmaking (film production) is the process by which a motion picture is produced. Filmmaking involves a number of complex and discrete stages, starting with an initial story, idea, or commission. It then continues through screenwriting, casting, pre-production, shooting, sound recording, post-production, and screening the finished product before an audience that may result in a film release and an exhibition.

In this activity teams planned their own LEGO movie using Lego characters and blocks based on different topics such as friendship, care, horror, fun etc. They followed the process of film making such as script, casting, shooting, adding sound, release and exhibition and finally their movies were played before the class and then through voting the best got selected.

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WEEK 4 / GRADE 6

DRIVE UP A SLOPE_FORCE AND FRICTION

The force that prevents motion when the surfaces of two objects come into contact is known as friction. We can improve our lives by comprehending and using friction and forces, which are an essential element of daily life. Students utilized pre-built Lego EV3 robots in this activity to move them up a slope with a specific degree of inclination. Students experimented with lifting the robot up the slope and measured the amount of weight and friction needed to do it. Few teams were able to maneuver the robot up the slope after doing troubleshooting with the robot's design, code, and strategy.

Students learned the value of frictional force in addition to gravitation through this fantastic activity.

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WEEK 5 / GRADE 6

DRIVE UP A SLOPE 2_FORCE AND FRICTION

Activity from the previous week continues. Last week, students programmed the pre-built LEGO EV3 robots to climb the ramp. Teams made numerous attempts to move the robot up the ramp but were unsuccessful due to the unbalanced forces (friction and gravitation). However, this week, using what they learned from last week, they improvised their robot and were successful in moving the robot up the ramp by balancing the forces.

Teams employed a variety of strategies, including lengthening the robot to distribute its weight, creating a triangular-shaped robot to absorb friction, switching the wheels, changing the robot's direction of motion, etc.

Students shared their knowledge with other groups and took pleasure in their successes and failures.

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GYRO THE ANGLE

The orientation and angular velocity of an item can be measured and maintained by a gyro or gyroscope sensor. Compared to accelerometers, these are more modern. Unlike accelerometers, which can only measure linear motion, they can measure the tilt and lateral orientation of the item. In this activity, students used the pre build robot to learn the basic functionality of programming by moving the robot forward, backward, left and right. Students then programmed the robots to move it in a square path by comprehending the amount of rotation or seconds required to turn the robot at an angle of 90 degree. After doing many trails few teams managed to turn the robot 90 degree with a minute error. Teams later connected the Gyro sensor and researched the use of it.

Teams were also given chance to move their robot on the First Lego League mat in such a way that robot starts form the base and then after moving on the mat return back to the base only which involved the movement and the turns.

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WEEK 5 / GRADE 7

CHECK YOUR MOVES

The phenomenon of an item changing its position with respect to time is known as motion in physics. Mathematics uses displacement, distance, velocity, acceleration, speed, and time to describe motion.
Students used a Pasco Motion sensor to analyze motion in this project. Using a position-time and velocity-time graph, they were able to foresee, capture, and evaluate the motion of objects moving in front of the sensor. Teams engaged in a focused activity called "Match the Graph," which showed how well they understood how location and velocity changed over time and how to program a sensor to display the various speeds of items moving in front of it.

Overall, the activity was enjoyable and educational with a real-world application.

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WEEK 5 / GRADE 8

EV3 POLYGONS 2

Drawing the polygon is simple, but programming the robot to do it is difficult. In STEAM, we focus on finding creative solutions to difficulties.

In a prior task, teams built a pen robot that could draw polygons on a surface. The robots were employed by the teams, who then modified and programmed them to move and draw polygons based on their needs.

Making the robot travel straight and turn precisely at the proper angle was one of the most difficult tasks. Teams were able to successfully draw the polygons after a short period of practice. The hexagon, square, and other shapes were created by others.

Teams created their own works of pattern art after sketching the polygons, which they then shared with one another.