مدرسة امباسادور

AMBASSADOR SCHOOL

INSPIRE INQUIRE INNOVATE

STREAMING FORWARD

April 2024

P.O. Box 126924, Plot No.: 317-278, 41A Street, Mankhool, Bur Dubai, Dubai, U.A.E.

SCARECROW: ENGINEERING AND DESIGNING PROCESS

Introducing engineering and designing process and skills which involves - Defining a problem, Plan, Create, Test, Improve and Share. Students applied the process to build a mechanical model of a scarecrow.
Later they tested their model and demonstrated the working principle of their design in the constructed model.
Through this hands-on exploration, students discovered how gears transmit rotation or movement from one part of the machine to another part . Recording and analyzing their findings, scientific research, critical thinking, creativity, and teamwork Each one of them comprehensive understanding of gears in machine at their own level.

MATH IS FUN WITH PLUGO

Students reinforced their counting and number identification using a computer vision technology through a product name PLUGO by SHIFU. They enjoyed hands-on activities to solve mathematics using this AR powered platform .This motivated them to interact with the virtual interface to enhance their learning experience.

Overall, the students adapted to this unique approach to learning by integrating technology with traditional play, making math an enjoyable learning experience for them. It also encouraged exploration, problem-solving, and critical thinking skills while providing a fun and engaging learning environment.

WEEK 1 / GRADE 1

COOLING FAN

Students were introduced to engineering and designing process to build a working prototype of a fan. They used adjustable speed motor, controller and a switch code blocks to program their model. The student created a program using the code blocks and adequately explained how the model works. Later they were also given a scope of modification to create a program using different code blocks and were encouraged to explain how these influence the model's working mechanism.

Recording and analyzing their findings, students developed computation, critical thinking, creativity, and teamwork skills, gaining a comprehensive understanding of construction (model) and programming.

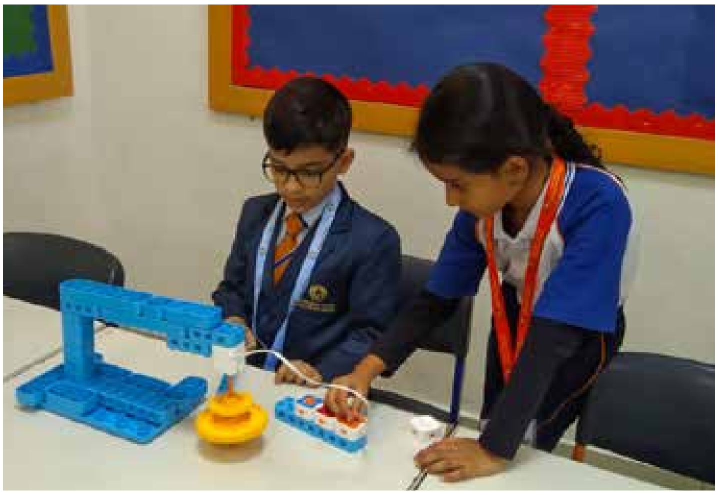
CATAPULT

Building catapult was fun for everyone. Using the STREAM skills students constructed a model of a catapult. Designing model of a catapult assisted the students to apply the 21st century skills of fair testing and problem-solving while understanding about the working principle of force, lever and sense of direction. Students tested the model by launching the projectile within a target to score points. Through trial and error, students developed problem-solving skills as they analyzed the results of their catapult trials and made adjustments to optimize performance.

SPINNING TOP LAUNCHER

Using sensor blocks with controller is very interesting session for students.The task was to build a working prototype of a spinning top launcher. Students used adjustable speed motor and few sensor blocks like controller, LED light and Switch to program their model. Each team tested their model and demonstrated the working mechanism of their design in the constructed model. Later they were also given a scope of modification to create a program using different code blocks and were encouraged to explain how these influence the model's working mechanism.

Through this dynamic experience, students sharpened critical thinking, computational thinking, and collaboration skills, making learning a thrilling adventure.



MTINY : WHERE IS MY PLACE?

A coding bot “ MTINY” which integrates computer programming into real life without a screen is a curiosity building session. The activity was introduced by explaining “What is an algorithm?” and how is it useful while coding. They played a simple outdoor game to understand the importance of algorithm for a programmer and a robot to accomplish the task successfully.

Focus was laid upon sequencing and applying it to program the bot. Without the need to use mobile phones or tablet PCs, students used the physical controller (stylus) and maps to program the bot to a defined destination.

This immersive activity not only fostered extensive applied and analytical knowledge but also cultivated collaborative skills, enriching the students' educational experience.





FUN WITH STOP MOTION!

After the creation of animation movies, stop motion animation has become popular in STREAM sessions. Using the LEGO Community Starter Kit and Stop Motion Studio application students creativity was tapped through the completion of task. They developed a short story and then used the lego bricks to create a simple set and the mini figures for their characters. Through hands-on experimentation, they explored the fundamentals of animation, learning to set up scenes, capture frames, and create seamless motion sequences. Students were thrilled to present their creations to the rest of the class.

This interdisciplinary experience not only sparked their creativity but also fostered teamwork and problem-solving skills. As students animated their ideas to life, they developed a deeper understanding of storytelling and digital creativity, laying the groundwork for future exploration in STREAM disciplines.






ALIVE OR NOT!

Science of living and non-living things through storytelling and stop motion animation techniques. LEGO Community Starter Kit and Stop Motion Studio application, each team crafted narratives highlighting key distinctions between living organisms and non-living objects. LEGO bricks were used to create a set for their movie along with some non-living objects, while mini figures were used to represent the living things.

Through creativity and digital skills, students brought their stories to life, showcasing their understanding of biological concepts in a creative and immersive manner. This interdisciplinary approach not only fostered scientific inquiry but also honed students' storytelling skills and digital literacy, enhancing their overall learning experience.

WEEK 1 / GRADE 4

SPIKE ESSENTIAL CAR

Students were introduced to the LEGO Spike Essential kit through a comprehensive tutorial, acquainting them with its components such as motor, color sensor, gyro sensor, and the LED display. They enthusiastically applied their newfound knowledge to construct a car using two motors and then programmed it to move and turn.

Through hands-on exploration, students delved into robotics and coding concepts, honing problem-solving skills and creativity. This immersive STREAM activity not only sparked their interest in technology but also laid a solid foundation for future experimentation and innovation in engineering and robotics.





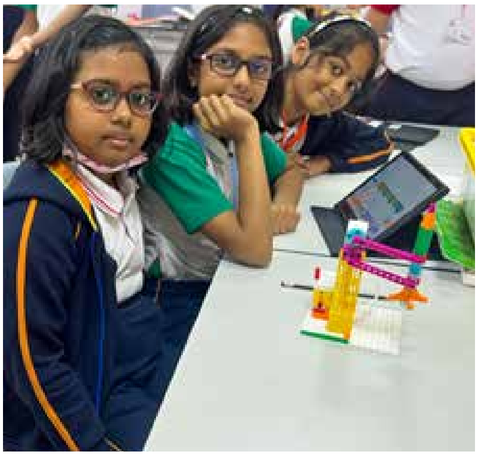

NUMBERS IN SPACE

Research and reading skill are important STREAM skills.To learn about universe, research is imperative. Important objective was to learn the distances between Earth and various moons of Jupiter and Saturn. Further to represent their findings in both Indian and international number systems. The LEGO Spike Essential kit was used to design and construct a rocket for a simulated lunar mission. The rocket was programmed to simulate the launching action.

This interdisciplinary STEM activity fostered scientific inquiry, mathematical literacy, and hands-on engineering skills. By integrating research, mathematics, and engineering, students gained a deeper understanding of space exploration concepts, laying the groundwork for future exploration and innovation in STREAM disciplines.








MOVE SPIKE!

Robotics is the most interesting STREAM topic that students want to learn.Introduction of LEGO Spike Prime kit and learning the technical terms was the objective. Through comprehensive tutorials, students familiarized with its components, including the motor, light sensor, gyro sensor, and display screen. Applying their newfound knowledge and guided instructions, students eagerly designed and built the Spike Rhino robot, showcasing creativity and problem-solving skills. They then programmed the robot to execute precise movements and showcased their coding abilities as well.

This immersive hands-on experience not only ignited their interest in STREAM but also fostered collaboration and critical thinking. By integrating theory with practical application, students gained valuable insights into robotics and laid a solid foundation for future exploration and innovation in the field.





THE SOIL STORY!

In this captivating STREAM activity, students explored the weathering process and formation of soil through storytelling. They developed a compelling narrative depicting the gradual transformation of rocks into soil and the formation of distinct soil layers. Creatively utilizing the LEGO Community Starter kit, students designed and built intricate sets to bring their story to life. With the Stop Motion Studio application, they animated their scenes, capturing the dynamic process of soil formation through stop motion animation.

Presentation was done with their animated stories to their peers, showcasing their understanding of geological concepts and their creativity in storytelling. This interdisciplinary project not only fostered scientific inquiry but also honed students' digital literacy and communication skills, creating a memorable and enriching learning experience.





WEEK 1 / GRADE 6

EV3 MOVES AND TURNS!

LEGO Mindstorms EV3 Robotics activity, students built basic robots and programmed them to move and measure distance. Working collaboratively, students assembled robots using LEGO Mindstorms EV3 components, then learned to code the robot to move forward, backward, left and right and solve the challenge such as writing the initial of their name or make number 8 . Their creativity and problem-solving skills shone as they customized robot behaviors. Key outcomes included understanding robot components, coding proficiency, and teamwork. Teams enjoyed working together and building the robot.

TINKERCAD LEAVES!

Analysing the intricate world of leaf anatomy using Tinkercad. Beginning with an introduction to the Tinkercad application, students familiarize themselves with its features and capabilities.

Following this, they were tasked with researching the internal structure of leaves, diving into the complexities of veins, stomata, and mesophyll cells. Armed with their newfound knowledge, students utilized Tinkercad to design digital models of leaf structures, incorporating their understanding of leaf anatomy into their designs.

Throughout the activity, students demonstrated creativity, critical thinking, and a deepening appreciation for the wonders of nature and technology. This interdisciplinary approach not only enhanced their digital design skills but also enriched their understanding of biological concepts.

LASER BOX!

One amazes when they land on the soil of UAE wondering architectural wonders. Using the Laserbox application made the lesson very interesting and fun . Introduction to the Laserbox software, learning the ins and outs of designing and laser cutting using various materials was the objective.

With newfound skills in hand, students were challenged to unleash their creativity by designing their own miniature houses using Laserbox. From conceptualizing floor plans to detailing architectural features, students explored the fundamentals of spatial design and craftsmanship.

With precision and ingenuity, students then brought their designs to life through Makeblock laser cutting, meticulously crafting each component of their houses. Through hands-on assembly, students transformed flat materials into three-dimensional structures, showcasing their problem-solving abilities and attention to detail.

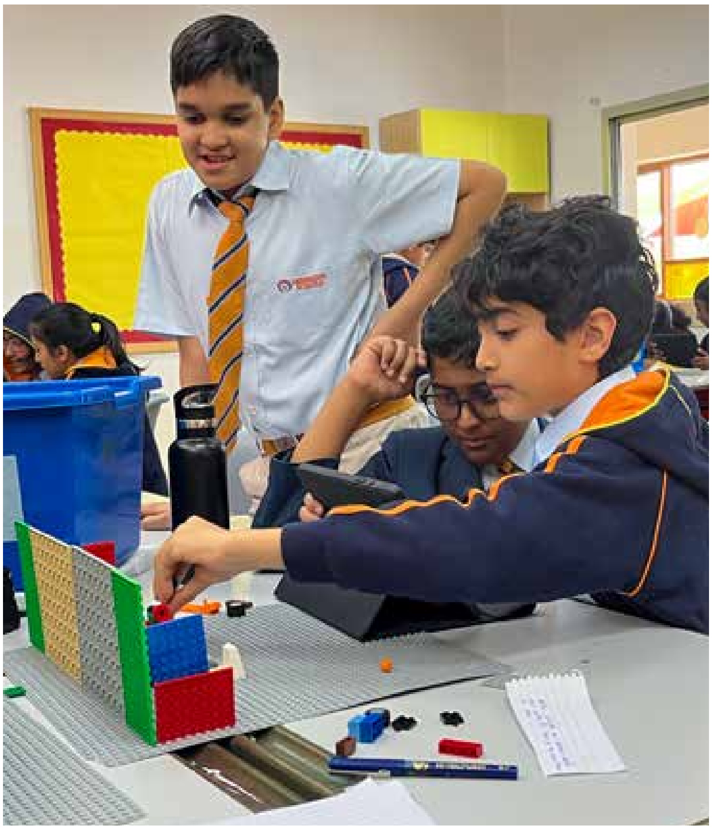
This immersive STEM experience not only honed students' technical skills but also fostered their creativity and appreciation for the intersection of technology and design.

ATOMIC TIMELINE ANIMATION!

Exploration of the history of atoms and atomic theory is most engaging for the young curious minds. Team of three, students delved into the lives of key scientists and their groundbreaking discoveries, including Dalton's atomic theory, Thomson's plum pudding model, and Bohr's atomic theory etc.

Armed with research and knowledge, students harnessed the power of storytelling and technology to create storyboards outlining pivotal scenes and key moments in the development of atomic theory. Utilizing stop motion animation application, students brought their storyboards to life, weaving together visuals and narration to elucidate complex scientific concepts.

This interdisciplinary STEM endeavor exemplified the intersection of science, technology, and storytelling, empowering students to become both creators and communicators of knowledge



FABLE ROBOTICS!

In this activity, students embarked on an exciting journey into robotics with Fable. Beginning with an introduction to Fable robotics, students learned essential practices for effective utilization, ensuring a solid foundation for their exploration.

Guided by their instructors, students received an overview of the Fable application, gaining insights into its functionalities for controlling and coding the robot. With enthusiasm and determination, students embraced the challenge of applying their newfound knowledge to solve a maze using the Fable robot arm.

Through problem-solving and experimentation, students navigated the maze, which enhanced their coding skills and help master the art of robotic manipulation. This hands-on experience not only fostered technical proficiency but also nurtured creativity and critical thinking as students tackled real-world challenges.






ANIMATED NERVES!

Neurology is a study of nerves and treatment of disorders of the nervous system.The nervous system is a complex, sophisticated system that regulates and coordinates body activities.Immersive exploration of the brain's inner workings was strengthened through the animation videos. Armed with creativity and curiosity, students utilized LEGO Community Starter Kits to construct simple models of the brain, delving into its complex structure and functionality.

Following the construction phase, students transitioned to the realm of digital storytelling, employing stop motion animation applications to illustrate the intricate functioning of nerves within the brain. Through the art of animation, students brought to life the dynamic interactions between neurons, showcasing their understanding of neural pathways and signaling mechanisms.

This interdisciplinary approach not only fostered hands-on learning but also encouraged students to apply their scientific knowledge in creative and innovative ways. By combining tactile construction with digital animation, students gained a deeper appreciation for the marvels of neuroscience and technology.

As students continue to explore the realms of STREAM, the skills and insights gained from this activity will serve as valuable foundations for future endeavors.