مدرسة امباسادور
AMBASSADOR SCHOOL
INSPIRE INQUIRE INNOVATE

STREAMING FORWARD

Dec - Jan 2025

VERY GOOD
DSIB RATING

LONG TAIL

Students successfully designed and constructed a motorized model of a giraffe. They demonstrated the working principle of the model, showcasing the working of motorized components that allowed the giraffe to rotate its tail. The students programmed the model using a motor, controller, and switch, effectively coordinating the motor's movement and control mechanisms. Additionally, they applied their knowledge of giraffes and their natural habitat, the grassland, to incorporate realistic features into the model, reflecting an understanding of both the animal and its habitat.

BLUEBOT SHAPES

Programming concepts such as sequencing and debugging to move the BlueBot through a grid and reach specific shapes. This is based on the descriptions using an interactive tool - the BlueBot simulator. They translated the verbal descriptions of the task into a series of commands. For example, if the task required the BlueBot to move from one corner of the grid to a circle in the center, students had to decide the correct order of actions—moving forward, turning left or right, and repeating certain steps. Students solved challenges through debugging. students learned to identify these errors, test their commands, and adjust the sequence until the BlueBot completed the task.

LET'S FRAME A SENTENCE!

students engaged in a comprehensive and creative process. They began by designing and building a well-organized scene using LEGO, which required planning the layout and structure of their creations. This task encouraged creativity and strategic thinking, as they needed to consider how the elements of their scene would work together.

To further enhance their project, the students wrote clear and detailed sentences using the story visualizer app to incorporate digital elements into their physical LEGO creations. This writing exercise helped them improve their writing skills, particularly in expressing their ideas clearly and concisely. By articulating the details of their scenes, students not only developed their narrative abilities but learned to communicate their creative vision effectively.

PROGRAMMING WITH MTINY

It's an extended activity, to comprehend the algorithm correctly and place the green tiles according to the instructions. A series of algorithmic steps, which included movements such as "move forward," "turn left," and "turn right." Using these steps, students placed the green tiles in the designated spots on a grid, representing the sequence of actions to be carried out by the bot.

Students programmed the bot to execute the algorithm. Sequencing the commands for the bot, ensured that the movements aligned with the steps in the algorithm. Students learned to translate algorithmic instructions into practical movements in a programmable environment.

In the second week, students demonstrated their computational coding skills by incorporating the Repeat code block into their programs. Students used this block to repeat certain steps within the algorithm, such as repeating a sequence of moves multiple times. This reinforced their understanding of loops

READY STEADY FLOAT

Students successfully built rafts that were able to float on water. They explored the relationship between the design and density of an object, understanding how these factors influence buoyancy. Students experimented using rubber bands to provide motion to the raft, elasticity of the rubber band powered the movement was checked. The students analyzed the working mechanism behind the raft's movement and energy transfer from the rubber band in the water

PIPER

Using computer vision technology, students used the magnetic hexagonal pieces and completed the picture by virtually joining pipes to transport water from the source to the final destination, carefully planning each connection to ensure the flow was continuous. This hands-on approach allowed them to apply design structure skills and critical thinking skills by building the pattern displayed on the screen.






ROBOTIC CHALLENGE

In the two week extended activity students developed and executed the MTINY program to solve the mission successfully.

In the first week, students completed three tasks using the bot. The first task was to measure and program the bot to move forward to a destination. The second task involved programming the bot to move backward to the base area. In the third task, they programmed the bot to move in a square pattern, starting and ending at the base. They approached all tasks with enthusiasm and successfully completed them.

In the second week, the students were given a task to program the bot to navigate to four different destinations. Each destination was worth 10 points, and the students were informed that 5 points would be deducted for any incorrect programming. The objective was to correctly code the bot to reach each of the four predetermined locations. Students then evaluated their points based on how well their programming performed.

STRAW ROCKET

In this activity, students created paper rockets that could be launched from a large paper straw. They followed instructions to construct the rockets using simple materials like paper, tape, and scissors. After assembling their rockets, students tested their designs by blowing air through the straw to launch the rockets into the air.

As part of the activity, students made modifications to their rocket designs, experimenting with changes such as adjusting the number of the fins or altering the length of the cone. These adjustments were made to improve the rocket's performance, aiming to make it fly farther or straighter. Through trial and error, students learned how different modifications could affect the rocket's flight stability and distance.

GEAR UP

By using computer vision technology, students practiced by manipulating magnetic hexagonal pieces, which represented gears, and virtually joined them to complete the picture shown on the screen. This process required them to understand both the virtual and physical aspects of the task, allowing them to see how digital instructions could translate into tangible actions, fostering their understanding of spatial relationships and engineering concepts.

MTINY COMMUNITY

The students designed and constructed a map of the community, carefully identifying and marking key places on the mat. They used their creativity and understanding of the community's layout to represent various landmarks and destinations. Once the map was completed, the students programmed the MTINY bot to navigate through the different destinations marked on the map. This hands-on activity helped them enhance their problem-solving and programming abilities while reinforcing their knowledge of the community's layout.

AROUND THE WORLD CHALLENGE

In this two-week extended activity, students applied their knowledge to design, program, and execute various missions using the Whales Bot S30. They learned fundamental programming concepts related to motion and loops, gaining a strong understanding of how to control the bot's movements through coding. Throughout the activity, they also applied their understanding of measurement to solve missions accurately, ensuring the bot navigated correctly to reach specific destinations and collect objects in the base area.

In the first week, students were tasked with building a simple bot and programming it to move while measuring the distance traveled in one rotation. They then programmed the bot to travel a specific distance of 60 cm and come back to the base area. After creating their program, they tested the program on the mat to check for accuracy and effectiveness.

In the second week, students were given the task of transporting objects to different destination countries marked on the mat. For each successful destination reached, they earned 10 points. To complete the task, students applied concepts such as measurement, addition, subtraction, and division, reinforcing their mathematical skills while navigating the bot and achieving their mission objectives.

SHADOW PUPPET THEATRE

Students designed and built their own LEGO shadow puppets theatre. They used LEGO bricks to create a structure, ensuring that the design was sturdy and functional for projecting shadows onto a screen. Students also learned how to set up the theatre, incorporating elements like a backdrop and a place for the light source.

During the experimentation phase, the students meticulously measured both the distance between the light source and the objects, as well as the size of the resulting shadows. From these observations, they concluded that the distance from the light source significantly influenced the sharpness and size of the shadow, a key insight they used to improve the projection in their theatre design.






TUG OF WAR WITH WHALESBOT S30

Students explored the concept of force through a tug of war challenge. Using the WhalesBot S30 kit, each team designed and built their own robots and used the control pad to move the robot remotely. As two teams faced each other in the battle connected by a thread, the task was to pull the other robot towards them. The activity aimed to teach students about the principles of force, motion, and engineering design. Through this activity, students understood the concept of force and its application in real-world scenarios. They also learned about teamwork and problem-solving. The skills learned were engineering design, critical thinking, collaboration, and practical application of scientific principles.





SUMO BOT CHALLENGE!

Students delved into the concept of force through an engaging sumo bot battle challenge. Utilizing the WhalesBot S30 kit, they designed and constructed robots with the goal of pushing the opposing team's robot outside the arena boundary, which was marked by tape on the floor. The activity helped students gain a practical understanding of force and its real-world applications. They also developed teamwork and problem-solving skills along with engineering design, critical thinking, collaboration, and the practical application of scientific principles. This activity fostered creativity and innovation among the students.

STORYTELLING WITH PICTOBLOX

Students explored storytelling with Pictoblox in this activity. Using tablets with the Pictoblox application, they were introduced to visual block-based coding and applied their knowledge to program a short animated story. They created movement and interactions between two characters or sprites by using motion, looks, control, and event blocks. This activity strengthened their logical thinking, creativity, sequencing skills, and basic coding abilities. By designing and coding their own animated stories, students combined technology with storytelling, gaining hands-on experience in digital animation and interactive programming while bringing their imaginative ideas to life.

SPIKE BIRDY!

Students engaged in this interesting activity where they explored the structure and function of bird anatomy before designing a feeder bird using the Lego Spike Essential kit. They built a bird model and programmed it to detect when a Lego feeding bowl was placed near its mouth, triggering a response. This hands-on experience enhanced their creativity, problem-solving, coding, and engineering skills while introducing them to sensor-based automation. By combining design, construction, and programming, students connected nature with technology, gaining a deeper appreciation for robotics and how smart systems can mimic real-world behaviors.






BROADCASTING WITH PICTOBLOX

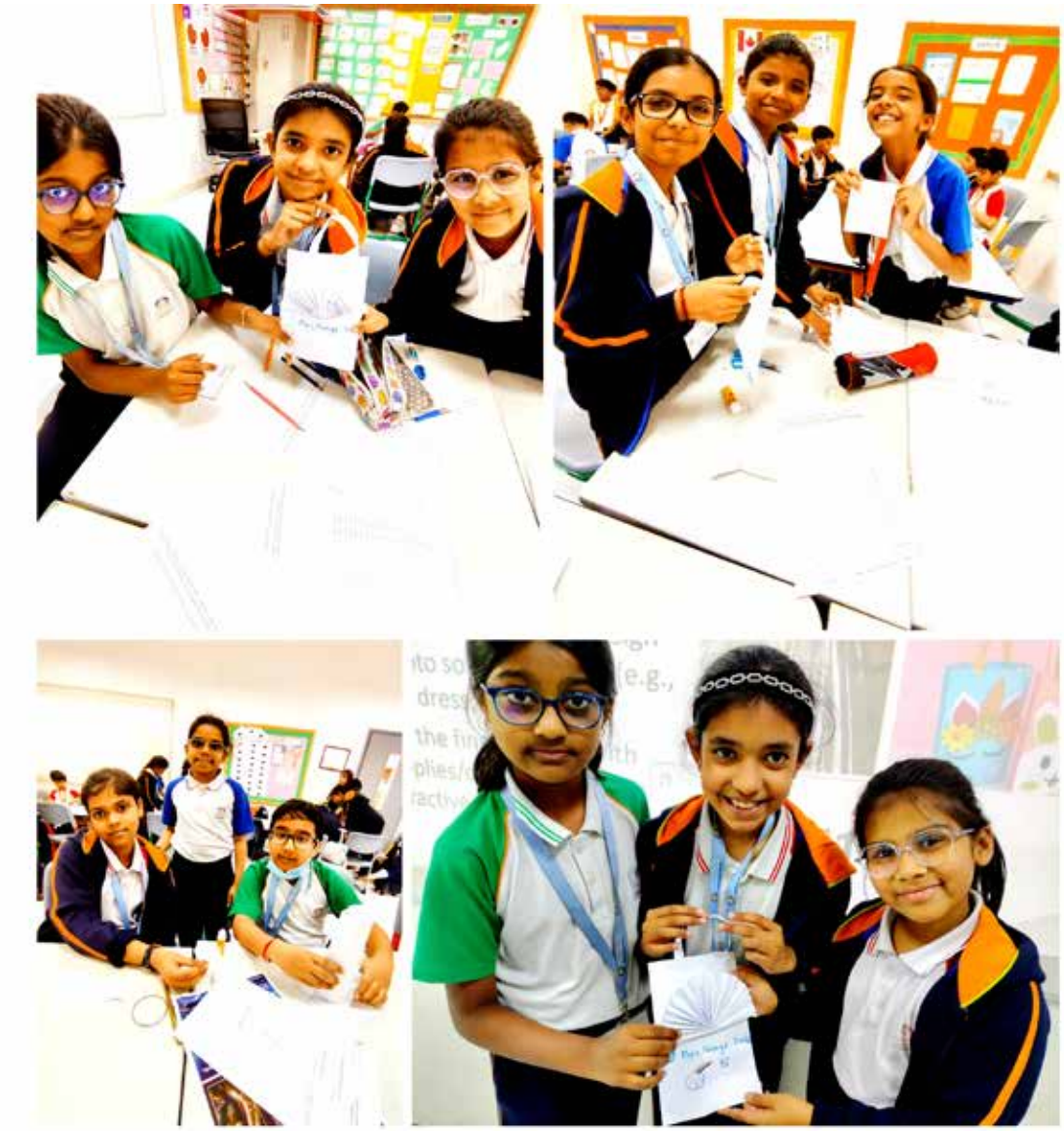
In this activity, students discovered how to make sprites communicate through broadcasting. They applied this concept by designing short stories where characters and objects interacted seamlessly. This creative process helped them develop logical thinking, sequencing, and problem-solving abilities while enhancing their storytelling skills. By working with broadcast messages, they gained a deeper understanding of coding logic and interactive design. The hands-on experience allowed them to structure digital narratives effectively, making coding both enjoyable and meaningful.





PAPER CIRCULAR FASHION

Students engaged in this sustainability focused activity through circular fashion. They creatively designed and crafted clothes and bags by reusing old newspapers, glue, tape, and scissors. The activity helped students understand the importance of sustainability and the concept of reusing materials to reduce waste. They also learned about creativity and resourcefulness. The skills learned were design thinking, problem-solving, collaboration, and practical application of sustainability principles. This hands-on activity encouraged students to think creatively and innovatively about reusing materials in everyday life.



ROCKET ANGLES!

Students explored the application of angles by designing, building, and launching paper rockets using paper, tape, and scissors. Using an adjustable rocket launcher, they launched their rockets at 30°, 45°, and 60°, measuring the distances covered. This hands-on experiment helped them understand how launch angles affect flight distance.

Students developed skills in measuring, data recording, problem-solving, and teamwork. They also learned the importance of accurate angle measurement in engineering and physics. The activity enhanced their critical thinking and reinforced mathematical concepts, achieving learning outcomes related to angles, trajectory, and real-world applications of STREAM.

3D UNDERWATER ROV!

Students embarked on an exciting activity, exploring underwater ecosystems and designing a 3D model of a remotely operated vehicle (ROV) using Tinkercad. They learned 3D design, problem-solving, and engineering principles while enhancing creativity and digital literacy. Through research on marine exploration, they understood real-world applications of ROVs in ocean studies. The activity fostered teamwork, critical thinking, and innovation, and helped the students in understanding underwater technology and its role in marine science.






DIGESTION IN MOTION

Students participated in an engaging activity, where they explored the human digestive system by creating a stop-motion animation video. They used the LEGO Community Starter and the Stop Motion Studio app, and visualized the step-by-step process of food digestion. This hands-on activity helped them develop skills in sequencing, animation, storytelling, and scientific inquiry while enhancing creativity and collaboration. By integrating technology and biology, they achieved a deeper understanding of the digestive system and mastered stop-motion techniques. The learning outcome was a strong grasp of human digestion and improved digital storytelling skills.

ESSENTIAL ANGLES

Students explored angles through an exciting activity using Lego Spike Essential. They first drew lines at 45, 90, and 135 degrees on a chart paper and then designed, built, and programmed a robot to turn at precise angles and follow the paths. This hands-on challenge enhanced their logical thinking, spatial awareness, problem-solving, and coding abilities. Using Lego Spike Essential, chart paper, and a pen, they combined mathematics with robotics to apply real-world engineering concepts. By the end of the activity, they gained a deeper understanding of angles and how programming controls movement in robotics.

BRICQ HOPPER!

Students explored mechanical movement by designing and building a hopper using Lego BricQ Motion. They constructed a hopper model with a gear mechanism and tested its movement under different conditions—without wheels, with one wheel, two wheels, and larger wheels. Through hands-on experimentation, they discovered how gears transmit motion and force and analyzed the impact of wheel size and number on friction and efficiency. This activity allowed them to connect physics with real-world mechanics, deepening their understanding of how machines function and optimize movement.

BALL RUN!

In this activity, students explored energy and motion by designing and building a ball run model using Lego Community Starter for support columns and paper and tape for tracks. They applied concepts of potential and kinetic energy, gravity, and friction to create a functional run while collaborating to refine their designs. By testing and modifying their models, they enhanced their problem-solving, critical thinking, and teamwork abilities. This hands-on challenge encouraged creativity and experimentation as they followed guidelines to improve efficiency. The activity provided a deeper understanding of physics principles through an engaging and interactive building experience.

SPIKE HOPPER

In this activity, students observed the effect of friction on robotic movement by designing, building, and programming a motorized hopper using Lego Spike Prime. They tested their models by measuring distance, speed, and stability on different surfaces, analyzing how friction affects movement. Through hands-on experimentation, they discovered how surface textures impact performance, making adjustments to optimize efficiency.

This activity strengthened their engineering, problem-solving, and analytical thinking while enhancing their ability to refine designs based on data. By combining robotics with real-world physics, students deepened their understanding of how friction influences motion in both natural and mechanical systems.






SAFE LANDING

Students explored the science of air resistance by designing and building parachutes using crepe paper or newspaper, thread, tape, glue sticks, and scissors. They planned and constructed different sized models, then conducted experiments to test their performance. By observing how air resistance slows falling objects, they compared the effectiveness of various designs.

Through hands-on testing, they developed critical thinking, problem-solving, and analytical skills while refining their designs based on results. This activity encouraged creativity and experimentation, helping students understand how forces influence motion and how engineering principles apply to real-world problem-solving in aerodynamics.

TINKERCAD CODING INTRODUCTION

our Grade 6 students embarked on an exciting journey into the world of Tinkercad Coding! They were introduced to the basics of Tinkercad's coding platform, learning how to create and manipulate designs through code.

Through hands-on practice, students explored the connection between coding and design, experimenting with different shapes, patterns, and creative ideas. This activity sparked their curiosity and encouraged them to think like designers and problem-solvers, combining creativity with technology.

TINKERCAD PATTERN CHALLENGE

students showcased their creativity and coding skills today during the Tinkercad Pattern Design Challenge! Using Tinkercad's coding tools, students were tasked with designing unique and intricate patterns as part of this engaging activity.

They experimented with coding concepts to create various shapes and patterns, refining their designs and exploring the endless possibilities of technology and creativity. This challenge not only enhanced their coding abilities but also encouraged problem-solving, critical thinking, and artistic expression.

PAPER PLANE CHALLENGE

Our Grade 6 students soared to new heights during today's exciting Paper Plane Challenge! The activity challenged students to design and test paper planes capable of achieving the longest distance traveled and the maximum flight time.

Students explored the principles of aerodynamics, experimented with different designs, and tested their planes to see how adjustments in weight, shape, and throwing techniques impacted performance. The challenge encouraged creativity, critical thinking, and teamwork as students worked to refine their designs and outdo their previous attempts.

From smooth glides to unexpected loops, every plane had a story to tell! This hands-on activity was a perfect blend of fun and learning, teaching real-world applications of science and engineering concepts.

BOREWELL RESCUE MACHINE

Grade 6 students took on an inspiring real-life challenge today by designing a Borewell Rescue Machine using the concept of simple machines. Applying their knowledge of levers, pulleys, and wheels, the students worked in teams to create innovative solutions to rescue kids trapped in borewells.

This hands-on activity combined creativity, problem-solving, and teamwork as students explored how simple machines reduce effort and make challenging tasks possible. Their designs reflected not only their engineering skills but also their ability to think critically about real-world problems.

ENERGY OPTIMIZATION USING PICTOBLOX AI

students rose to the challenge of solving real-world energy sector problems using PictoBlox AI coding! They worked collaboratively to identify key challenges in the energy sector and designed innovative systems to optimize energy use.

Students applied critical thinking and programming skills to refine their solutions and optimize their code for efficiency and sustainability. This hands-on activity not only introduced them to the powerful combination of AI and coding but also encouraged them to think creatively about solving global energy challenges.

AIR BLOCK DRONE INTRODUCTION

students had an exciting STEM experience, diving into the world of drones! Using the Drone Sim AR app, they explored drone simulations to understand how drones operate and navigate in different environments.

Students were also introduced to the Airblock drone kit, where they learned about drone components and assembly. This hands-on activity gave them a glimpse into drone technology and its real-world applications, sparking curiosity about the future of robotics and aviation.

LIVE LIKE AN ANIMAL

students embarked on a fascinating STEM activity that blended biology, architecture, and creativity. They researched the habitats of various vertebrate animals, focusing on specific features that make these habitats efficient and sustainable.

Inspired by their findings, students sketched innovative designs to modify and improve human houses and buildings, taking cues from nature's genius. This activity encouraged them to think critically about biomimicry and its potential to solve real-world challenges in architecture and construction.

REDESIGNING SHOPPING CART

Grade 8 students took on a STEM challenge to rethink and redesign the everyday shopping cart! They began by identifying common problems with current shopping cart designs, such as usability, safety, and convenience.

After brainstorming possible solutions, students sketched their innovative ideas for a new and improved shopping cart. Their creative designs incorporated features to make shopping more efficient, accessible, and user-friendly.

This activity showcased their problem-solving skills and ingenuity, proving that even everyday objects can be transformed with the right mindset!

SMART SHOPPING CART

Grade 8 students showcased their creativity and problem-solving skills in today's STEM activity by designing and programming a Smart Shopping Cart using LEGO EV3 robotics kits.

The challenge was to simulate a shopping cart capable of identifying and tracking items, making shopping more efficient and user-friendly. Students learned to program the EV3 robot, integrating sensors and coding logic to bring their smart cart concepts to life.

This hands-on activity highlighted the importance of technology in everyday life while encouraging critical thinking and innovation.

LINE FOLLOWING ROBOT

Grade 8 students combined the principles of light reflection with robotics in an exciting hands-on activity! Using the concept of how light reflects off different colored surfaces, students designed and programmed a line-following robot.

This activity helped them understand the role of sensors in detecting light intensity and how it guides the robot's movement along a path. By integrating concepts of light and robotics, students developed critical problem-solving and programming skills while exploring real-world applications of science and technology.

EVGP TEAM SHOWCASES ELECTRIC CAR AT KINDERGARTEN STREAM FEST

Our EVGP team had an exciting opportunity to present our electric race car at the Kindergarten STREAM Fest, inspiring young minds with the wonders of Science, Technology, Robotics, Engineering, Arts, and Mathematics (STREAM).

During the event, we introduced parents and students to the design, engineering, and sustainability behind our electric vehicle. The kindergarteners were especially fascinated by the battery-powered engine, asking curious questions about how the car moves without fuel. Team members enthusiastically explained electric vehicle technology, encouraging young learners to explore engineering and robotics from an early age.

The highlight of the day was seeing the young students' excitement as they got a close-up look at the car, sat in the driver's seat, and imagined themselves as future innovators. Parents appreciated the team's dedication and the hands-on learning experience it provided.

By participating in STREAM Fest, our team not only shared our passion for EVGP but also inspired the next generation of engineers and problem-solvers. We look forward to more opportunities to promote STEM education and sustainability in our community!

EVGP TEAM INSPIRES MIDDLE SCHOOLERS WITH ELECTRIC CAR SHOWCASE

Our EVGP team brought excitement to the middle school assembly with an interactive showcase of our electric race car, engaging students in a fun and educational experience.

The event kicked off with a quiz session, where team members tested the students' knowledge of electric vehicles, sustainability, and engineering. The enthusiastic responses showed their curiosity and growing interest in EV technology.

Next, the real excitement began with a live driving demonstration of our race car, giving students a firsthand look at its speed, precision, and efficiency. The highlight of the assembly was an exhilarating race between our electric car and the school's Panther mascot, which had the crowd cheering loudly as they rooted for their favorites!

The energy in the room was incredible as students clapped, laughed, and cheered for the team, showing their full support for our upcoming EVGP competition. Their encouragement and enthusiasm motivated us even more to push forward and perform at our best.

We are grateful for this opportunity to share our passion for EVGP, educate young minds about electric vehicle technology, and inspire future innovators. With the support of our school community, we are excited and ready to take on the challenge ahead!