مدرسة امباسادور
AMBASSADOR SCHOOL
INSPIRE INQUIRE INNOVATE

STREAMING FORWARD

November 2024

VERY GOOD
DSIB RATING

CAFÉ LUNCH HOUR

Preparing a healthy breakfast using the Lego Math Café Set was the task. It began with lively discussions about the importance of eating nutritious food. Each student then presented their unique healthy breakfast creation. They explained their choices, detailing the ingredients they included and the reasons behind their selections. For instance, one student constructed a healthy sandwich, explaining that the ingredients—tomato, cucumber, lettuce, cheese, and egg—made it a nutritious option for breakfast.

Student articulated their thoughts on how their breakfast choices would contribute to a nutritious start to the day. The experience allowed them to express their creativity with the Lego set and deepened their understanding of healthy eating and its role in maintaining a balanced lifestyle.

MONSTER CANNOT COUNT

Reading and comprehending tasks with addition numbers and word problems was the objective. Each student was given a word problem to read independently. Using PLUGO manipulatives students solved the problem shared on the screen. Answers were discussed with the class and explained how they used the manipulatives to solve the problem. The teacher guided the students through the process, helping them connect the visual representation of the problem to the mathematical operation of addition. The class worked collaboratively, strengthening the teamwork, and reinforcing the concept of addition through hands-on practice.

MTINY ROUTINE DIARY

Students applied their understanding of basic programming logic and movement commands to design an algorithm that guided MTINY through a journey, simulating its travel from the Global Village to its home. First, students reviewed the fundamental movement commands. After mastering the working of blocks individually, students created a sequence of instructions to guide MTINY on its journey. For example, students calculated how many steps MTINY needed to take to cover the distance between various landmarks and applied to move forward, turn right, and leave code blocks at the appropriate points along the route.

Once the program was complete, students demonstrated their computational coding skills by running the algorithm and observing MTINY as it followed the programmed path. They explained how each block worked together to guide MTINY from the Global Village to its home, ensuring the bot navigated correctly according to their instructions.

MAKE U ENGINE

Students demonstrated their ability to identify and accurately assemble the various parts of the vehicle, showcasing a strong understanding of the function of each component. By following instructions and applying their knowledge of mechanical and electrical systems, students assembled the vehicle from start to finish. They programmed the vehicle's basic movements. A remote control program was applied to move forward, reverse, and execute left and right turns of a vehicle. Through hands-on experimentation, students' proficiency helped adjust the control inputs to achieve the desired movements and fine-tune the vehicle's responsiveness.

The progress of the session was observed through the car race. This was an opportunity for students to see the results of their efforts in real-time, and they enjoyed the challenge of testing their creations against one another in a fun and engaging way.

PLAYGROUND - DESIGN FOR ALL

Strengthening students' creativity and fine motor skills by building a playground using LEGO DUPLO blocks was the task. They designed a playground for a fictional character they had created. Throughout the process, they carefully considered both the fun and safety elements of their designs.

As they constructed various playground equipment—like slides, swings, and climbing structures—they engaged in discussions about what made each piece safe and enjoyable. For instance, they ensured that slides had gentle slopes and that swings were securely anchored, highlighting their understanding of safety in play. They also incorporated safety features such as soft landing areas and enclosed spaces to prevent falls.

Each student brought their unique vision to life, personalizing the playground layout to reflect their interests and those of their fictional characters. Students worked collaboratively, sharing ideas and suggestions while encouraging one another to think critically about their designs.

BUILD A RAFT

The goal was to create a raft that would float on water and hold as much weight as possible before sinking. Each group considered factors such as the size of the raft, and the materials to create a stable design. The groups then conducted experiments by placing their rafts in a tub of water. They observed whether their rafts floated or sank and recorded their findings. Later they began testing the weight capacity of their rafts. One by one, they added glass beads to the raft and noted how much weight it could hold before it began to sink.

Students discussed and reflected on what worked well and what didn't, and based on the results of their experiments, they suggested possible improvements. Some groups decided to modify their rafts by adjusting the shape to improve stability. Others learned from their initial mistakes, using their reflections to try new approaches to make their raft more durable and capable of holding greater weight.

SUBTRACTION STORY ANIMATION

Students learned how to perform simple programming using the PictoBlox.ai platform. They gained an understanding of the basics of programming, such as instructions and sequencing. Through hands-on activities, they explored how to create programs by identifying and using various code blocks from the pallets, which included blocks from Motion, Events, Control, and Look. They realized that these commands had to be arranged in a logical sequence to achieve the desired outcome. For example, a simple program might involve making a sprite move, saying something, and then waiting before performing another action. They practiced creating these sequences by animating a short animation for a sprite.

It was an engaging activity that demonstrated their understanding of subtraction through their programs, showcasing their ability to sequence actions, use code blocks effectively, and present a creative story that illustrated the concept of subtraction.

SAVE WATER SAVE LIFE

Differentiating drought and lush environments using creative design was the objective of the session. Students constructed scenes demonstrating how water affects nature, and how important water conservation is for both the environment and human life. They discussed how using too much water or wasting it can cause droughts while saving water helps protect the planet and keep everything in balance.

Students created digital posters to share information about water scarcity and the need to conserve water. They combined pictures, facts, and messages to make their posters clear and informative. This project helped students explain important environmental issues in a simple and effective way, using visuals to spread awareness and encourage positive action.

DESIGN YOUR PUPPET

The class began creating a design specification for a puppet using the materials provided to them. Students brainstormed ideas, considering the type of puppet they wanted to create and the features that would make it unique. Each student took the time to write down their specifications, detailing the materials they would use and the characteristics they envisioned for their puppets.

Using the designs students progressed to the building phase. Application of the knowledge of materials such as fabric, cardboard, and craft supplies to bring their ideas to life was the key task. As they constructed their puppets, they paid close attention to the joining techniques they had previously investigated, ensuring that each piece was securely attached and that the puppets were sturdy.

Finally, the students took pride in sharing their work, highlighting the unique aspects of their puppets.

ARRAY DRIVING

Designing, constructing, and modifying a basic driver-based model of a vehicle was a challenge for every student. Using building instructions, the simple robotic vehicle was designed that move in different directions. Each group as a team assembled their vehicle, ensuring it was stable and functional. The next step was programming it using a remote control pad. Students wrote basic commands that controlled the movement of their vehicle. Specifically, students used repeat code blocks to program the movement of the bot in a square or rectangular pattern, ensuring that the vehicle moved forward a set number of times and turned in a direction to form the desired shape.

Students reflected on how the repeat block helped them simplify their code and how their understanding of multiplication assisted in creating accurate patterns.

FRACTION ELECTRICITY

In this lesson, students applied their knowledge of fractions to divide a given area into specific sections. They were tasked with marking different areas of land in the imaginary town of Fractionville, based on fractional instructions. Specifically, they divided the area into halves and quarter. They calculated and marked these divisions carefully, ensuring that the land was divided precisely according to the fractional instructions.

After completing the fraction division activity, students were given the task to light up their town. They were introduced to the basic concepts of a circuit and how electricity flows to light up devices. To explore this concept practically, students built a simple circuit. They joined the necessary components, including a battery, wires, a lightbulb, and a switch. They connected the wires to form a complete loop, allowing electricity from the battery to flow through the circuit when the switch was closed.

This hands-on experience helped students connect theoretical knowledge of fractions and circuits to practical, real-world applications.

FRACTION PARK

Students built a motorized model of a scarecrow using a gear mechanism, combining their understanding of mechanical systems with electrical engineering. They assembled the model, integrating various sensors—such as infrared (IR), sound, light, and switches—into the design. By applying their knowledge of circuits, they connected the sensors and motor to a controller, using code blocks to program the model's behavior. The students demonstrated how the sensors interacted with the motor and controller to trigger specific actions, ensuring that the circuit allowed the flow of electrical charge from the controller to power the sensors and motor effectively.

Presentation of the models helped learn the application of sensors, and gears, illustrating their understanding of how the components worked together to bring the scarecrow to life. While dismantling the models, students identified and broke down each part into fractions of the whole structure.

Through this activity, students strengthened their problem-solving, programming, and mechanical skills, while also learning how to communicate technical concepts.

FESTIVAL ANIMATION MOVIE

Students celebrated the festive spirit by creating a stop-motion animation based on Halloween or Diwali. Using the LEGO Community Starter Kit, they built detailed sets and used the mini-figures for their characters, crafting imaginative scenes to suit their chosen theme. They used tablets with the Stop Motion Studio app to animate their stories, capturing frame-by-frame sequences.

This activity encouraged creativity and storytelling, while also developing technical skills in animation and movie-making. By integrating LEGO building with digital tools, students gained hands-on experience in design, teamwork, and the fundamentals of filmmaking, fostering both innovation and cultural appreciation.

PHOTOSYNTHESIS WITH PASCO

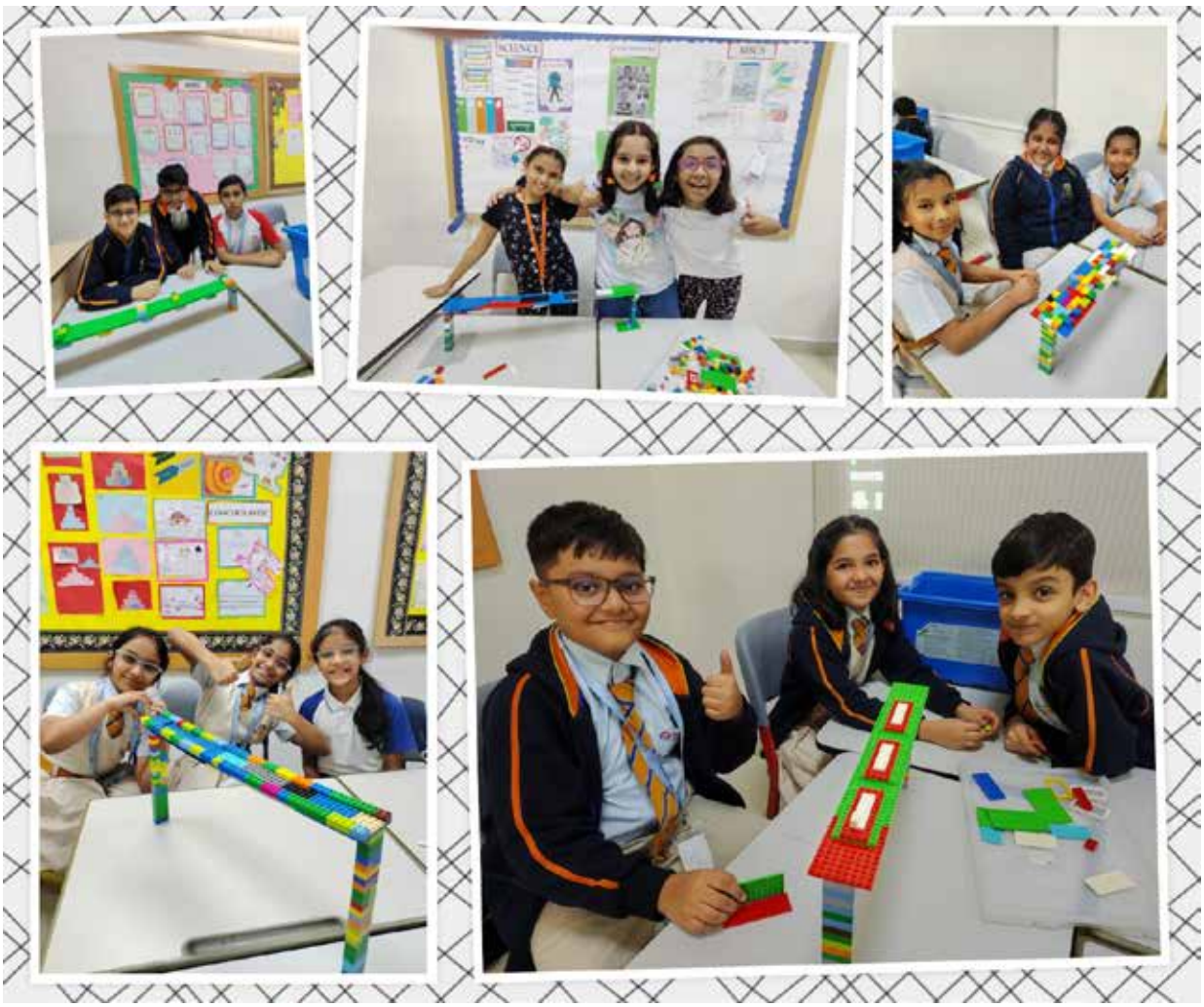
A scientific experiment was conducted by the students to learn photosynthesis. In the first experiment, Students dissolved baking soda in water, placed leaves in the solution, and observed oxygen release as air bubbles under a flashlight. In the second experiment, students measured carbon dioxide levels in a jar with wet leaves exposed to light using the PASCO carbon dioxide sensor.

These experiments fostered scientific temperament by engaging students in testing observation, framing hypotheses, and data analysis. Through this activity, they gained a deeper understanding of factors affecting photosynthesis and reinforced critical thinking and inquiry skills.

LEGO LONGEST BRIDGE CHALLENGE

Measurement was learned differently through a hands-on bridge-building challenge using the LEGO Community Starter Kit. The task was to construct the longest bridge with a minimum width of 5 cm and a height of 10 cm, combining creativity with engineering principles. Students measured and tested their designs to ensure structural stability, fostering skills in architecture and structural engineering.

This activity encouraged teamwork, problem-solving, and precision in applying the concept of length measurement. By connecting mathematical concepts to real-world applications, students gained practical insights into design and construction while enhancing their spatial awareness and critical thinking.



SHADOW THEATRE!

A shadow is a dark area where light from a light source is blocked by an image.

Students explored the concept of light and shadows by creating a shadow theatre and crafting a stop-motion animation using the LEGO Community Starter Kit. They built two LEGO brick columns to hold a paper screen and designed a stage behind it for storytelling using LEGO mini-figures. A flashlight was used to cast shadows, and team members captured images to create animations.

This helps foster creativity, storytelling, and technical skills in movie-making while deepening their understanding of light and shadows. It also enhanced teamwork, problem-solving, and artistic expression, blending science and art in an engaging hands-on learning experience.

TINKTOBER CHALLENGE - HALLOWEEN!

3D design using Tinkercad was introduced, where students learned the basics of 3D modeling tools and concepts. Students created unique 3D models inspired by fun Halloween themes. This activity helped students develop spatial skills awareness and creativity as they visualized and designed objects in three dimensions. Through this hands-on experience, students gained a deeper understanding to showcase their ideas of life to the world of 3D design while enhancing their problem-solving abilities.

MICRO BIT STATES

Learning the basics of coding and electronics using the micro: bit platform was the task for students. They applied their newly acquired skills to create simple interactive projects that demonstrated their understanding of the states of matter. coding and electronics were integrated and, students applied scientific concepts to life, creating projects that engage and educate. This hands-on experience deepened their understanding of matter and helped develop their problem-solving skills, creativity, and technical knowledge.

LEGO FRACTION HOUSE

Students explored the fascinating world of fractions in a hands-on and creative way. Through engaging lessons, they learned to differentiate between like and unlike fractions and gained the ability to create equivalent and simplified fractions. To bring their learning to life, students designed and built a house using LEGO Fraction Walls and Fraction Towers, where each section represented different fractional values. This project allowed students to apply their knowledge of fractions in a fun and interactive way, reinforcing their understanding of mathematical concepts while fostering creativity and teamwork.

STORYTELLING WITH PICTOBLOX

Grade 4 students recently dived into the exciting world of animation using Pictoblox. They were introduced to key animation concepts and learned to use essential blocks like Motion, Looks, Sound, and Broadcast to bring their stories to life. By the end of the activity, students were able to create their own simple animated stories, applying their knowledge of animation techniques and coding. This hands-on experience not only sparked their creativity but also helped them develop important skills in storytelling, coding, and problem-solving.

FUTURE TRANSPORTATION CHALLENGE!

Students explored the exciting world of 3D design by creating models of future transportation systems using Tinkercad. They applied their creativity and design skills to envision and build innovative concepts for how transportation might look in the future. This hands-on activity not only helped students develop their 3D modeling skills but also encouraged them to think critically about the future of technology and transportation. The project allowed students to combine imagination with technical learning, bringing their futuristic ideas to life in the world of 3D design.

LEGO DREAM HOUSE

Students reinforced their understanding of percentages through a hands-on activity where they designed and built their dream house. Using a LEGO base plate, students allocated specific percentages of the total area to different rooms like a bedroom, dining, and bathroom, along with a garage and a garden. They calculated the dimensions for each room, translating percentages into measurements before constructing the house using the Community Starter Kit.

This activity fostered creativity, engineering, and architectural skills while applying mathematical concepts to a real-world scenario. Students enhanced their problem-solving abilities, spatial reasoning, and teamwork, gaining practical insights into how percentages relate to planning and design in everyday contexts.

FITNESS TRAINER BOT!

Students celebrated Dubai Fitness Challenge by designing and programming a Workout Trainer Bot using the LEGO Spike Prime Kit. The bot was engineered to perform sit-ups, and the students programmed it to count and display the total repetitions completed in a minute. This activity combined creativity, engineering, and coding skills while emphasizing the importance of exercise for healthy living.

Students gained hands-on experience in robotics and programming logic, along with teamwork and problem-solving. By connecting technology with fitness, the activity raised health awareness and showcased the practical application of STREAM concepts in promoting active lifestyles.

CATCH THE APPLE - GAME!

Students began a two-week activity where they designed and programmed an apple-catching game using the Pictoblox application. Students explored the various blocks such as events, motion, costumes, variables, loops, and conditional statements to build the game mechanics. The game involved catching falling apples with a bowl, earning 10 points for each catch, and losing points for missed apples.

This activity fostered creativity and introduced key programming concepts, enhancing students' logical thinking and problem-solving skills. By engaging in game design, students connected coding with fun and practical applications, laying a strong foundation for advanced programming concepts in the next session.

FESTIVE LEGO EV3 ROBOT FOR DIWALI OR HALLOWEEN

Grade 6 students embraced their creativity and engineering skills by designing, building, and programming LEGO EV3 robots with festive themes for Diwali and Halloween. This engaging activity combined engineering, creativity, and basic programming as students brought their holiday-themed robots to life. The project not only enhanced their technical skills but also fostered teamwork and innovation, making the festive season a fun and educational experience.

SILLY WALKER

Grade 6 students had an exciting time building and programming their "Silly Walker" robots using the LEGO EV3 kit. Through this activity, they explored fundamental robotics concepts, programming logic, and the engineering design process. Students experimented with creative ways to make their Silly Walkers move in amusing and unique ways, blending technical skills with imagination. This hands-on experience sparked curiosity and enhanced their problem-solving abilities while bringing plenty of laughter to the classroom.

PATTERN MAKING CHALLENGE

Students delved into the exciting world of 3D modeling using Tinkercad Codeblocks. They learned the basics of this powerful tool, discovering how to use loops and transformations to create intricate patterns. By applying coding concepts, students were able to design and generate custom 3D patterns, showcasing their creativity while strengthening their understanding of programming logic. This hands-on activity not only introduced them to the fundamentals of 3D design but also fostered problem-solving skills as they brought their digital creations to life.

FESTIVAL LIGHT CIRCUIT CHALLENGE

Real-life application of circuits and coding with a creative twist was the session. Using Tinkercad, they designed digital circuits and then brought their ideas to life by building physical light circuits with the Blix Circuit Kit and consumables. By combining coding and engineering, students created interactive Diwali or Halloween-themed lighting effects, blending technology with creativity. This hands-on activity enhanced their understanding of digital design, circuitry, and coding while fostering innovation and problem-solving skills.

ENERGY OPTIMIZATION ALGORITHM USING PICTOBLOX AI

The learning was on the concept of energy optimization and its importance in real-world applications through an engaging STREAM activity. They were introduced to the basics of artificial intelligence and learned how algorithms can be used for efficient energy management. Using PictoBlox, a block-based coding platform, students simulated energy optimization scenarios with AI tools. This hands-on experience enhanced their understanding of sustainable practices and advanced technologies, fostering problem-solving and critical-thinking skills.

HALO DIWALI

The learning was on the concept of energy optimization and its importance in real-world applications through an engaging STREAM activity. They were introduced to the basics of artificial intelligence and learned how algorithms can be used for efficient energy management. Using PictoBlox, a block-based coding platform, students simulated energy optimization scenarios with AI tools. This hands-on experience enhanced their understanding of sustainable practices and advanced technologies, fostering problem-solving and critical-thinking skills.

BOTTLE SUMO ROBO

Students showcased their engineering and programming skills by building competitive robots using LEGO Spike Prime. Through this activity, they applied physics concepts such as force, motion, and balance to design and refine their robots. They also learned simple programming to control robotic movements and collaborated effectively in teams to solve various engineering challenges. This hands-on experience enhanced their problem-solving abilities and fostered teamwork, preparing them for future STREAM opportunities.

DRONE DELIVERY

Students explored the fascinating role of drones in modern logistics and delivery systems through an engaging STREAM activity. Using the Drone Sim AR application simulator, they learned basic drone programming concepts with block-based coding and successfully coded drones to navigate between locations. The activity challenged students to apply their engineering and problem-solving skills to design a functional delivery system, offering valuable insights into the future of automated transportation and enhancing their understanding of technology and innovation.