مدرسة امباسادور
AMBASSADOR SCHOOL
INSPIRE INQUIRE INNOVATE

STREAMING FORWARD

June 2024

VERY GOOD
DSIB RATING

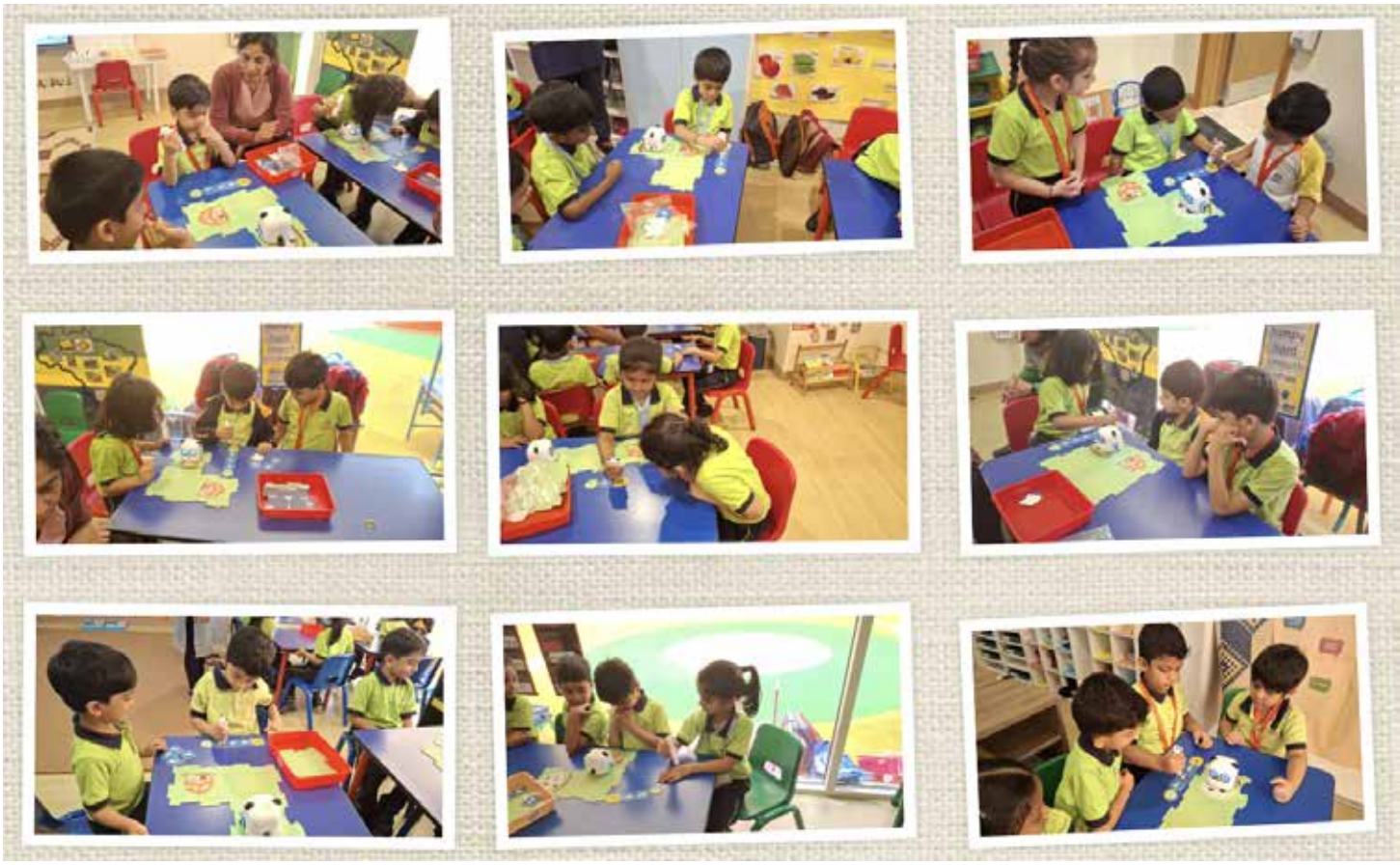
GET UP AND PLAY!!

Students embarked on an imaginative journey to construct their own miniature playgrounds using LEGO Playground kit. Armed with colorful blocks and boundless creativity, they transformed their visions into reality, designing slides, swings, climbing frames, and more. As they assembled their playgrounds, they delve into the principles of engineering, considering stability, balance, and structural integrity. Collaboration bloomed as they exchanged ideas, negotiated designs, and pooled resources to bring their playgrounds to life. Each structure become a testament to their ingenuity, with every slide and swing a triumph of problem-solving and teamwork. Amidst the laughter and excitement, they learned a valuable lesson in spatial reasoning, design thinking, and having fun. Ultimately, these miniature masterpieces served as tangible reminders of the endless possibilities that unfold when imagination meets construction, fostering a love for learning that extends far beyond the boundaries of the playground.

CODER MIGHTY TINY!!

The students embarked on an exciting journey into the world of algorithms, where they delved into the intricacies of problem-solving and computational thinking. Fundamental concept of algorithm was introduced, beginning with simple three-step processes and gradually advancing to more complex four-step algorithm. Through hands-on programming exercises, applying their logical reasoning skills, they learnt to to micro manage problems into manageable steps and devise efficient solutions. As they navigated MTINY, applying the algorithms crafted, challenges were encountered that equired creative thinking and adaptability.

With each successful maneuver, students not only reached their destination but also gained a deeper understanding of the power of algorithms in solving real-world problems. This experience equipped them with invaluable skills that will serve them well in their academic pursuits and beyond.

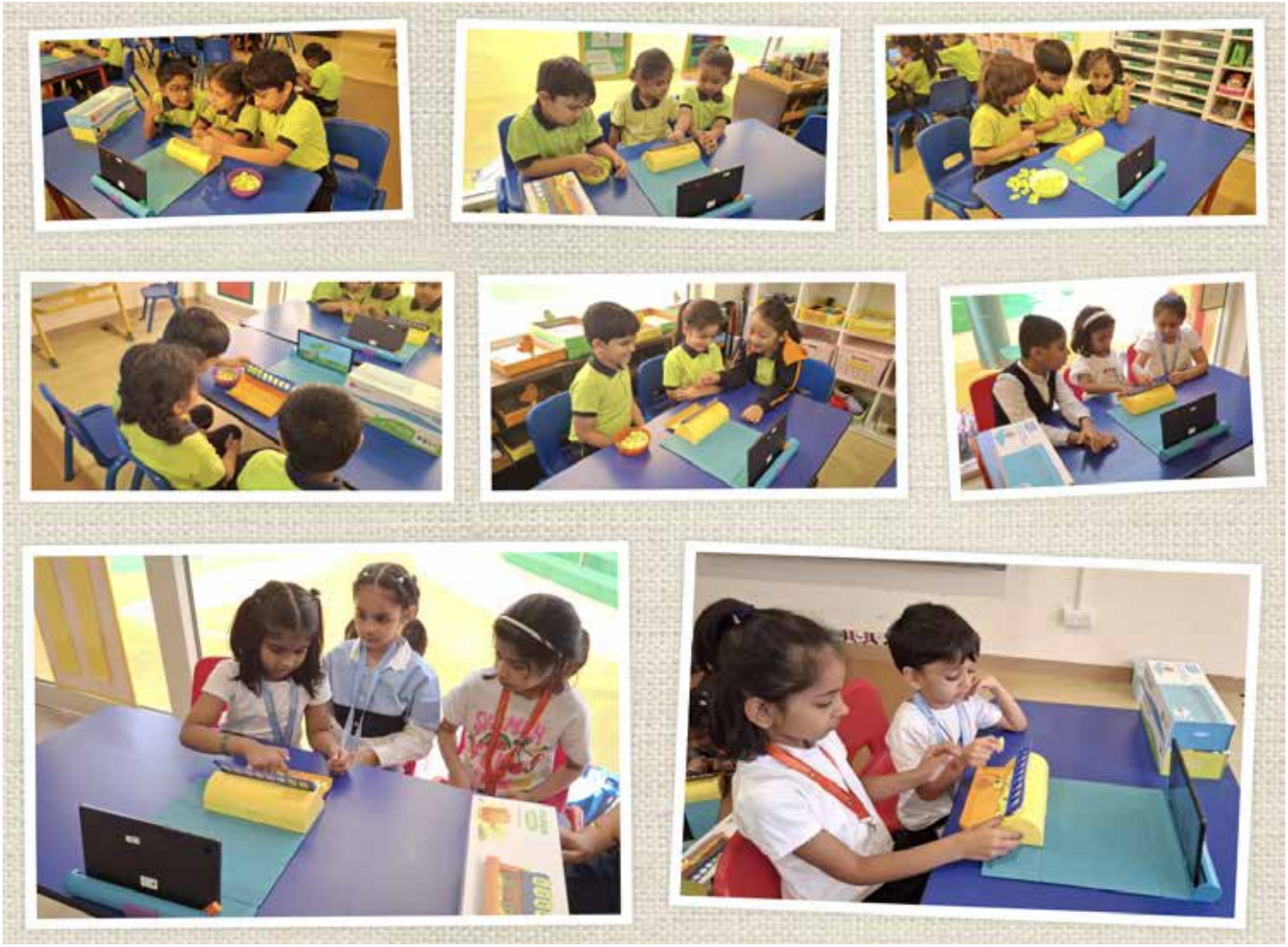


SPINNING LAUNCHER

The launcher was made with gears to start the top spinning just right. Different tops and launchers were tried out to compare and identify the longest spin. Next task was to make changes to both the launcher and the top to make them work better. Students observational skills was noted while adjusting the gears, the fastest launch, placing the weight on the top. Repeated testing and changing was allowed until they found the best setup. It required hard work and reflective thinking, to figure out the best way to make the top spin for a long time. This proved smart designing and improvising skills in students. Every student achieved the target to learn how spinning things work. The process not only yielded a top that spun with remarkable endurance but also provided invaluable insights into the principles governing rotational motion. The process described involved skills, including: Critical thinking, Problem Solving, Creativity, Communication, Collaboration, Iterative Design which are essential in navigating complex problems and driving innovation in the 21st century.

SPELLING BEE

Innovative educational practices were on the rise, with the integration of augmented reality (AR) technology into classrooms becoming increasingly prevalent. One such example was the utilization of the PLUGO kit, where students engaged in interactive spelling exercises. Through AR-enhanced visuals, students were presented with images prompting them to identify corresponding words. Subsequently, they were tasked with framing the correct spelling of the identified objects. This dynamic approach not only fostered active participation but also cultivated a deeper understanding of vocabulary. By merging traditional learning objectives with cutting-edge technology, activities like these not only captured students' attentions but also promoted effective learning outcomes.



TREASURE HUNT!!

"Treasure Hunt" is an activity where students apply problem-solving skills through the concepts of Decomposition, Abstraction, and Algorithm. First, they decomposed the task into manageable components, breaking down the maze creation process into steps such as planning the layout, designing obstacles, picking points and determining the exit. Next, they employed abstraction to identify the essential elements of a maze, focusing on the pathways, dead ends, and potential challenges while simplifying 'minute' details.

Foundational understanding helped formulate algorithms, to navigate MTINY through the maze to reach the destination i.e. "Mystery Book". As students navigated through the maze they used algorithms to the test, encountering twists and turns that required critical thinking and adaptability. Finally, after recognizing the power of problem-solving strategies to overcome obstacles to achieve goal and upon reaching the elusive "Mystery Book", students unlocked the mystery of the book which was different parts of the plant. Students assembled different parts of the plant by stamping them together and labelling the same.

Through this engaging and interactive activity, students not only enhance their logical reasoning and spatial awareness but also cultivated a sense of achievement and confidence in their ability to tackle complex challenges.

BUILD THE BRICK

The students embarked on a captivating journey through the virtual world of PLUGO, where they were tasked with building intricate patterns using magnetic hexagonal bricks. Equipped with computational and logical reasoning skills, they embraced the challenge of unraveling hidden pictures concealed within the patterns. As they progressed through the levels, the difficulty heightened, presenting them with blurred and increasingly complex patterns to decode.

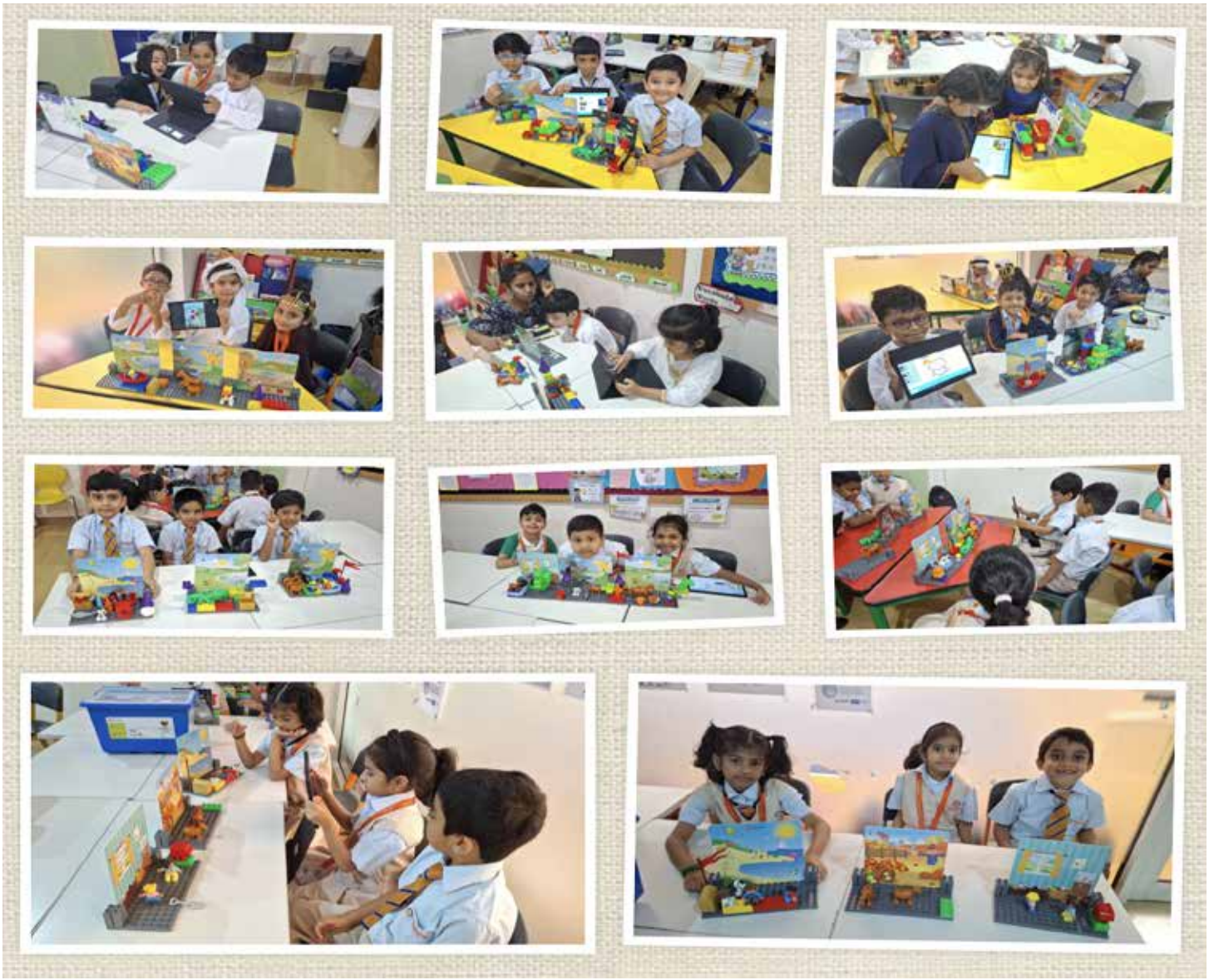
Undeterred, they applied their problem-solving abilities, carefully analyzing each piece to uncover the underlying images. With each stage conquered, a sense of accomplishment filled the air, and their enjoyment soared as they unveiled the pictures, progressing from stage 1 to the more challenging stage 34. Through this immersive experience, they not only exercised their cognitive faculties but also fostered a deep appreciation for the fusion of technology and learning.

SMART BARRIERS

The smart gate barrier was engineered with cutting-edge technology, incorporating a controller, infrared sensors, and a motor to ensure seamless operation. The objective was to demonstrate efficiency compared to traditional gate barriers. Rigorous testing, helped the incorporation of infrared sensors for precise detection of approaching vehicles, allowing swift and accurate response times. However, to further enhance its functionality, artificial intelligence (AI) was explored. By integrating AI algorithms, the gate barrier could adaptively learn and predict patterns of vehicle movement, leading to optimized performance and enhanced security measures. This solution presented a promising avenue for improvement, leveraging AI's capacity for continuous learning and decision-making. Comparisons between AI and human intelligence was made to reveal distinct advantages of both; while AI excelled in processing vast amounts of data and making rapid decisions, human intelligence offered nuanced understanding and intuitive reasoning. Ultimately, the integration of AI into the gate barrier system represented a significant advancement, paving the way for smarter and more efficient security solutions.

STORY TALES

LEGO bricks were used to craft stories with clear beginnings, middles, and ends. Digital tools helped enhance their storytelling skills. They turned their brick stories into colorful comic strips, mixing illustrations, sentences, images, and stickers using Story Visualizer App. This blend of hands-on building and digital innovation not only digitized their creativity but also encouraged them to explore and express themselves further. By combining the tactile feel of LEGO with digital versatility, students sparked innovation and imagination in their storytelling adventures.



FROM SEED TO A PLANT

Going green leads to a healthier lifestyle, a cleaner environment, it saves you money and is good for your children's future. The green initiative is about conserving resources so that your needs and the needs of future generations can be met.

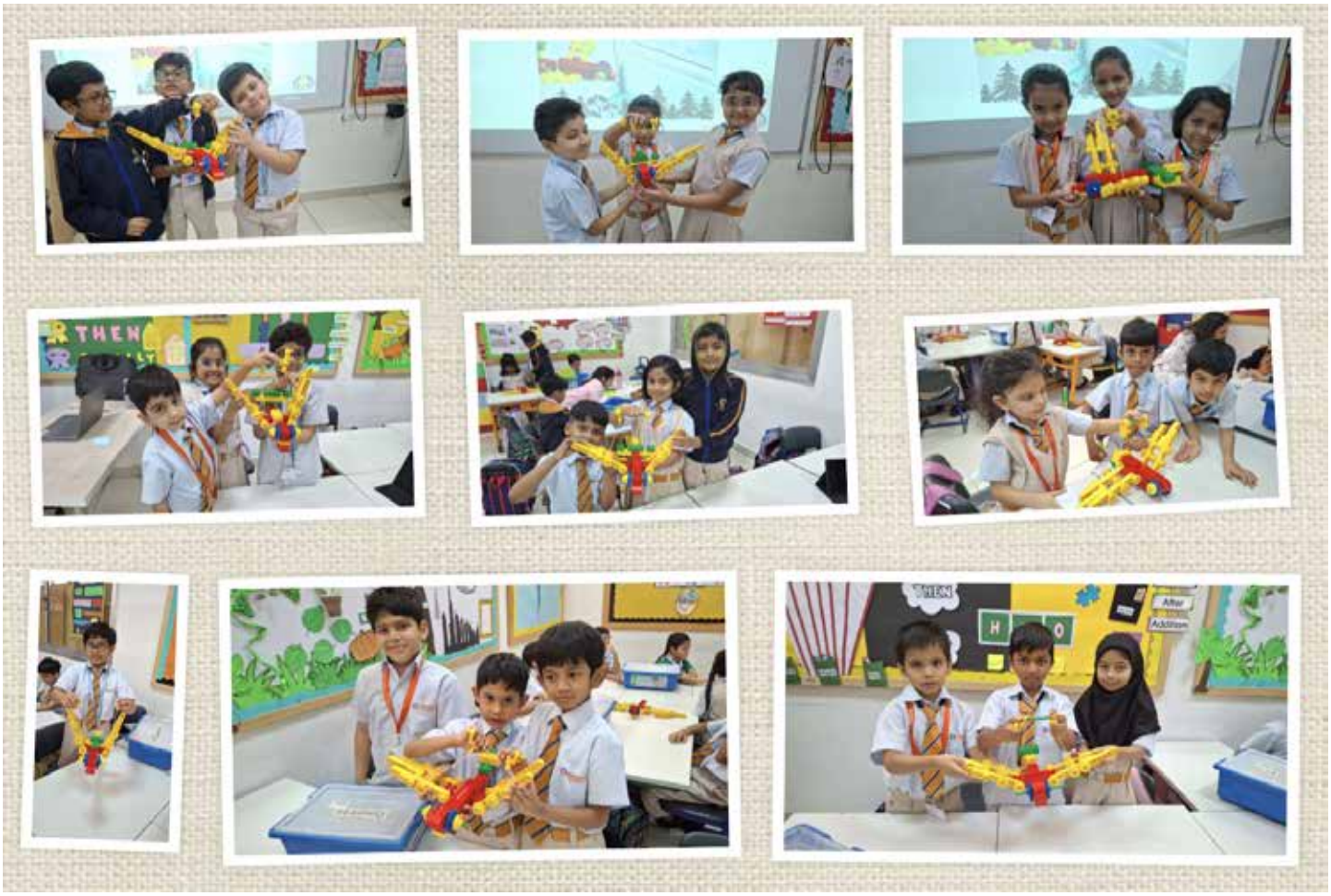
Captivating world of seed germination was a lesson for creation of an animated movie using the Stop Motion Studio app. With seeds as their protagonists, the young filmmakers embarked on an educational adventure, documenting the journey from seed to sprout with meticulous detail and creative flair.

“What is germination?” and the stages of germination exploration. Students transformed their desks into makeshift studios, using Lego Community Starter blocks and tablets as their props for the movie creation.

With the Stop Motion Studio user-friendly interface, students captured each stage of germination frames, unveiling growth of a seed to a plant. As the animation progressed, they narrated the process , demonstrating their understanding of seed anatomy and the environmental factors that influence growth.

FLY INTO LEARNING

Designing a mechanical bird was an exhilarating and fun learning task. Armed with building instructions, they collaborated closely, their collective expertise to replicate each step and bring the intricate model to life. The engineering and design skills were put to test, as they meticulously crafted each component with precision and ingenuity. As the final pieces clicked into place, a sense of achievement filled the room, marking the culmination of their collaborative efforts. With the mechanical bird complete, they eagerly delved into exploring its working mechanisms, gaining valuable insights into the intricate interplay of form and function. Moreover, this immersive experience provided them with a deeper understanding of the diverse adaptations and features that enable birds to thrive in their natural habitats, fostering a newfound appreciation for the wonders of the natural world.



LOCO JOJO

In the Loco JoJo PLUGO activity, participants engaged in an immersive problem-solving challenge centered around building a pattern to guide Loco JoJo towards the treasure. Through a series of interactive steps, players constructed a pathway by tilting the Loco JoJo device, maneuvering it strategically to overcome obstacles and reach the coveted treasure. The activity fostered critical thinking and spatial reasoning skills as participants experimented with different patterns and observed the effects on Loco JoJo's movement. Collaborative efforts and creative problem-solving were encouraged as players worked together to optimize their pattern designs. Upon completion of the activity, participants reflected on their strategies, celebrating successful outcomes and identifying areas for improvement. The Loco JoJo PLUGO activity provided an engaging and stimulating platform for honing problem-solving abilities in a dynamic and interactive setting.

SMART LIGHTS

The students had constructed a prototype of a smart light for a corridor pathway, which showcased an impressive application of technology and logic. They integrated an IR sensor and a color sensor with "and" logic blocks, demonstrating a sophisticated understanding of logical operations in their project.

The IR sensor detected motion, while the color sensor identified ambient color conditions. By utilizing "and" logic blocks, they effectively programmed the smart light to activate only when both conditions (motion detected by the IR sensor and specific ambient color sensed by the color sensor) were simultaneously met. This approach ensured that the light responded appropriately based on both movement and environmental conditions, optimizing energy use and enhancing user experience.

This project exemplified how STEM education nurtures innovation and problem-solving skills among students. By progressing from theoretical understanding to hands-on application, they gained practical experience in designing systems that address real-world challenges. Such initiatives prepare students to innovate in fields ranging from automation and robotics to sustainable energy solutions, fostering their readiness to contribute to technological advancements in society.

LAYERS OF SOIL!

Exploring Layers of soil by creating a model using the LEGO Community Starter Kit. The project began with a discussion on the importance of each soil layer, followed by the collaborative construction of the model. This hands-on activity helped them understand the five layers of soil: organic matter, topsoil, subsoil, parent material, and bedrock.
The students used different colored LEGO bricks to represent each layer. The tangible model helped them visualize and comprehend the composition and functions of each layer, making abstract concepts more concrete. This interactive approach not only fostered a deeper understanding of soil science but also encouraged creativity, critical thinking, and teamwork.

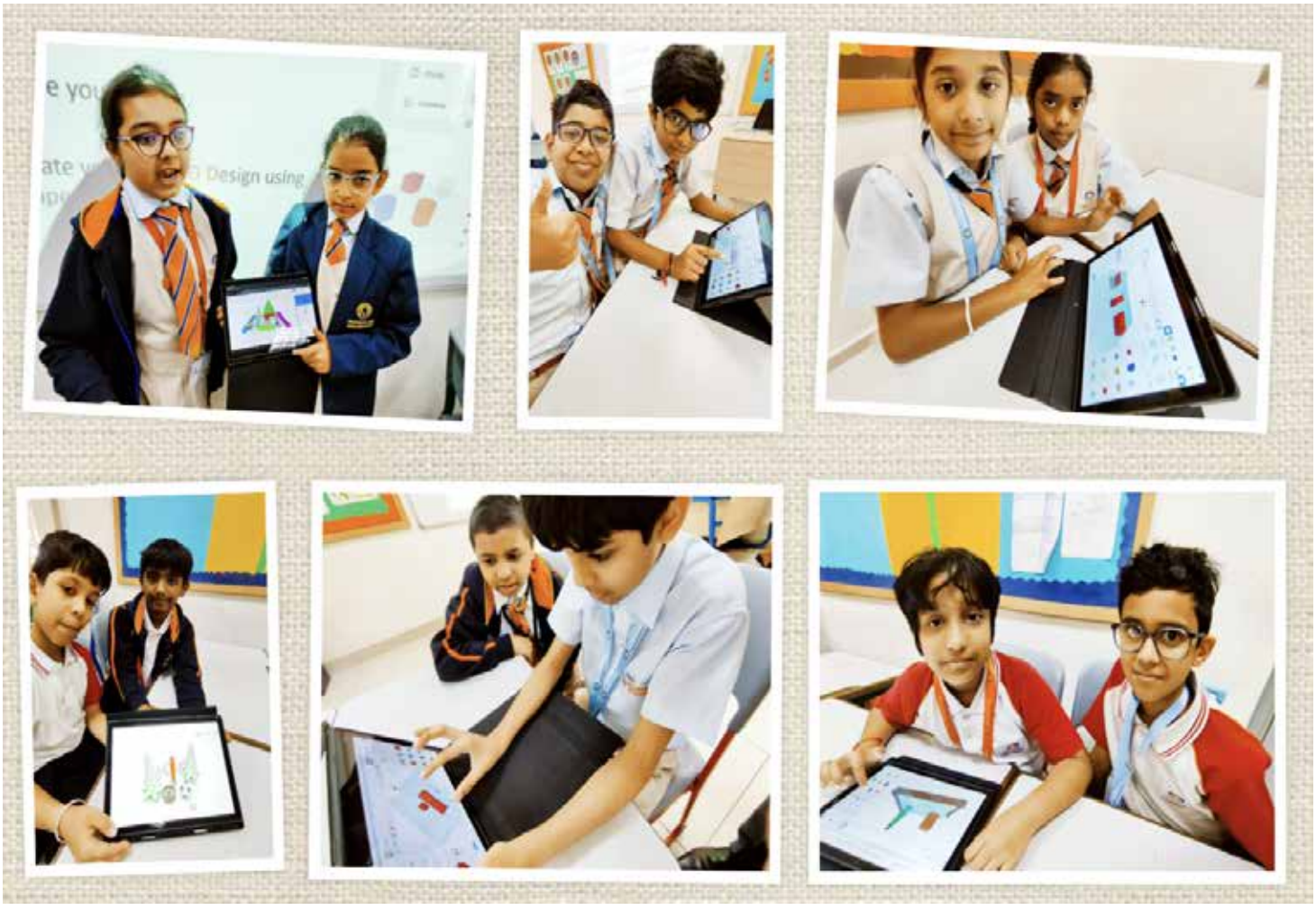
SUBMARINE QUEST!

Research about endangered ocean species using the SPIKE Essential Kit to design, build, and program a submarine model was the task. They began by studying various endangered marine animals, learning about their habitats, threats, and conservation efforts. This research fostered an appreciation for marine biodiversity and the importance of protecting ocean life.

Then, following the instructions in the SPIKE application, students constructed and programmed a LEGO submarine model. This hands-on project involved assembling the submarine using the kit's components and programming it to simulate underwater exploration. The activity combined science, engineering, and technology, enhancing students' understanding of marine conservation while developing their problem-solving and coding skills. The project was both educational and engaging, promoting environmental awareness on the World Environment Week.

TINKERING WITH TINKERCAD

Students were introduced to 3D designing using the Tinkercad platform. They began with basic tutorials that familiarized them with the application's interface and tools. These initial lessons covered fundamental skills such as creating and manipulating shapes, combining objects, and understanding spatial relationships.
After mastering the basics, students applied their newfound knowledge by creating their own 3D designs. This project fostered creativity and spatial awareness, allowing students to visualize and construct unique models. The activity not only enhanced their design and engineering skills but also provided a foundational understanding of 3D modeling, preparing them for more advanced STREAM applications in the future.



ADAPT A PLANT!

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UNDERWATER CHALLENGE!

Students celebrated World Environment Week by raising awareness about ocean challenges. They began with extensive research on various underwater problems, such as pollution, coral bleaching, and overfishing. Each group then selected one issue to focus on and applied design thinking to develop innovative solutions.

Using the design thinking process, students brainstormed ideas, created sketches, and built prototype models using the LEGO Community Starter Kit, addressing their chosen problem. Some groups designed filtration devices to combat plastic pollution, while others created reef restoration models to mitigate coral bleaching.

Once their prototypes were completed, students presented their solutions to the class, explaining their research process. This activity not only heightened their environmental awareness but also fostered critical thinking, creativity, and teamwork. By tackling real-world issues, students learned the importance of sustainable practices and their role in protecting ocean ecosystems.

MICRO:BIT CALCULATOR

Concepts of math, variables and conditional statements through hands-on learning with the micro: bit was an interesting task. Students learnt how variables store data and conditional statements allow programs to make decisions based on specific criteria.

Students designed and programed a simple calculator using the micro: bit. They wrote code to handle the four basic arithmetic operations: addition, subtraction, multiplication, and division. Each operation required understanding how to set and use variables for input and output, and how to use conditional statements to select the correct operation based on user input.

Through this project, students not only reinforced their understanding of mathematical operations but also developed their programming skills. The activity culminated in testing and demonstrating their calculators, which enhanced their problem-solving abilities and provided a tangible application of coding principles in a real-world context.

FREE THROW!

In this activity, students designed and built abasketball game using the LEGO BricQ Motion Essential Kit. Following the provided instructions, they constructed a functional basketball setup, complete with a hoop and a launching mechanism for the ball.

Once the game was assembled, students experimented with potting the ball by changing various distance parameters, such as the launch distance and height of the basket. They eticulously observed the ball's motion, recording each attempt's success or failure. By analyzing these patterns, students calculated the success rate for different configurations, applying principles of physics and mathematics to understand projectile motion and optimize their shots.

This activity not only engaged students in a fun and interactive way but also enhanced their analytical skills. It provided a practical application of STREAM concepts, fostering critical thinking, problem-solving, and data analysis. The project concluded with students sharing their findings and strategies to improve the game's accuracy.

ROBO GAME MASTERPIECE

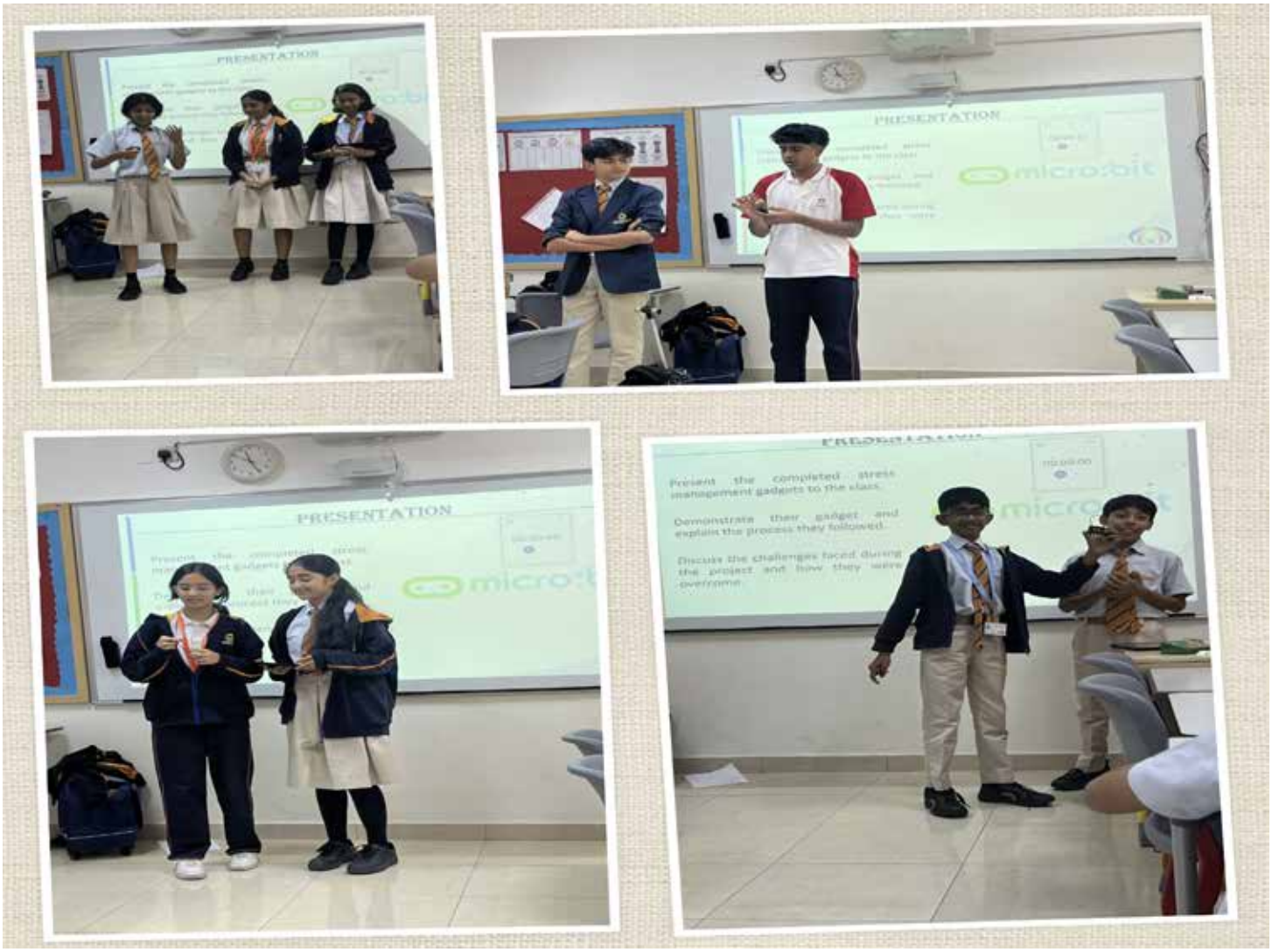
Students designed, built, and programmed a robot to complete various Robo Game missions. Using the LEGO Spike Essential kit, they created robots capable of navigating a mat with different themed missions such as an immersive experience, movie set, and music concert. Starting from a designated point, students programmed their robots to move through the mat, reach specific mission models, perform required tasks, and return to the starting point.
This involved precise coding for navigation, obstacle avoidance, and task execution. Throughout the activity, students learned about algorithms, sensors, and motor functions. The project fostered teamwork, problem-solving, and critical thinking as they iteratively tested and refined their robot's performance to successfully complete the missions.

BROWNIAN MOTION ANIMATION!

Brownian motion was the concept to experiment. Through interactive lesson Brownian motion through interactive session. They then brainstormed everyday scenarios where this motion is evident, such as the mixing of cream in coffee or the fragrance of perfume in a room. Using their newfound knowledge, students created storyboards to plan their stop-motion animations using Lego community starter sets, paper, and clay and captured each frame with meticulous care.
This hands-on activity not only deepened their understanding of a key scientific principle but also enhanced their technical skills in stop-motion animation. Students presented their work, reinforcing their learning and boosting the confidence while they spoke.

STRESS MICROBIT

This week, our middle school students dove into the world of micro-bit technology and coding, designing innovative stress management devices. After an introduction to the basics of microbits and programming, students brainstormed ideas for gadgets to help reduce or monitor stress. In small groups, they designed, built, and coded their devices using various consumables and materials. The creative solutions ranged from digital games and music devices providing calming feedback to wearable devices tracking heart rates. After completing their projects, students tested and presented their devices, showcasing their understanding of technology and creativity in addressing real-world problems.



EVGP PROMOTION AT STEM BEST PRACTICE AWARD 2024

On June 15, 2024, our talented students showcased their innovative Electric Vehicle Grand Prix (EVGP) car at the prestigious STEM Best Practice Award event. Shlok and Aarna, team of 2025, with the support of Abhinav, Krishna, Riya, and Arya, team of 2024, presented the EVGP car project to principals, judges, and students from the UAE and India. They highlighted the engineering process and the importance of sustainable transportation, captivating the audience with their dedication and technical expertise. The event provided a perfect platformto promote eco-friendly innovation, demonstrating the transformative power of STEM education.