



مدرسة امباسادور
AMBASSADOR SCHOOL
INSPIRE INQUIRE INNOVATE

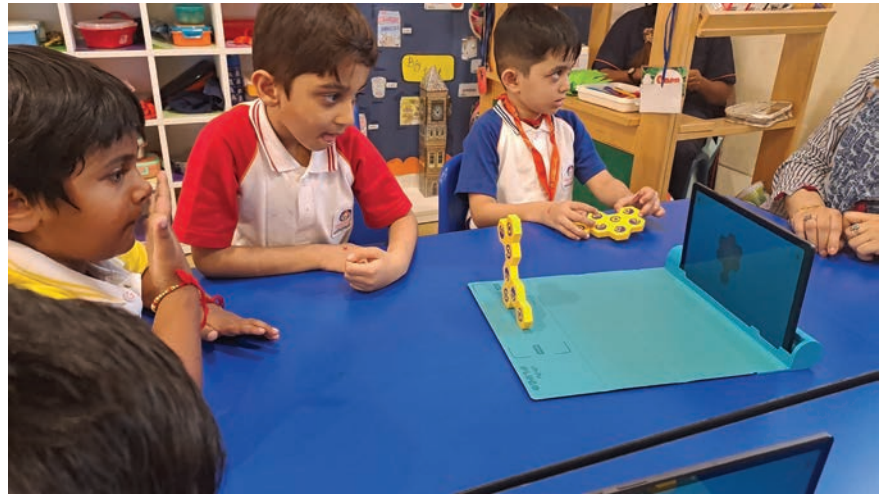


STREAMING FORWARD

September 2023

INTRODUCTION TO PLAYSHIFU PLUGO

Incorporating educational tools that engage students in hands-on learning experiences is essential for their intellectual growth and development. Plugo Link helps children develop spatial reasoning and problem-solving skills using Augmented Reality. This week they got introduced to this intriguing activity where they put the magnetic link tiles together to match the image shown on the tabs. Matching shapes to a flower, wrestler, car, turtle were some of the activities they completed.



WHO AM I?

PlayShifu Plugo is a cutting-edge educational toy that offers an interactive learning experience by combining physical play with digital interaction. In this weeks activity the students continued playing and learning with Links. Links promotes experiential learning, allowing students to manipulate physical objects while immersing themselves in virtual environments. This combination encourages active engagement, making complex concepts more tangible and easier to comprehend.



LET'S LINK AND PLAY

Links with PlayShifu Plugo connects abstract concepts with real-world scenarios, making learning more meaningful and applicable. Through interactive challenges and problem-solving activities, students develop a deeper understanding of how STREAM principles are utilized in everyday life. Reinforcing and advancing in level, the students had a fun time exploring the realms of Science, Technology, Reading, Engineering, Arts, and Mathematics.



LINKS, GEARS AND PIPES

This weeks activity presented the students with new challenges. The Gear Up challenge created an interactive platform for students to create animals with gears. The piper activity increased the critical thinking and problem solving skills in students and the “Who am I?” activity created curiosity in the students. The interactive nature of PlayShifu Plugo facilitates long-term retention by enabling students to interact with concepts rather than passively absorbing information. It’s gamified approach captures students' attention and heightens their motivation to learn.



MTINY, A CUTE FRIENDLY PANDA

MTiny is a little robot with an adorable panda look which comes with a tap pen controller and an interactive map which distinguish it from other products. Combined with a range of coding games for different levels, mTiny interacts with young children to spark their passion for discovery and learning. The students had a great time engaging with their new little friend, making the mTiny smile, cry, dizzy, and snore along with other emotions using the emotions card. They also learned how to move the mTiny around using the joystick, a good activity to increase their motor control.



DIRECTIONS WITH MTINY

Enhancing their proficiency with MTiny, students delved into the realm of directions. MTiny, the user-friendly robot designed for children, incorporates various coding cards, with direction cards proving to be an especially effective method for imparting navigation skills to the students. The students were introduced to mapping and navigation, delving into the concept of sequencing events. This not only nurtured critical thinking skills but also fostered collaboration, analytical thinking, and problem-solving abilities among the students.



LET'S FIND MTINY'S HOME

MTiny provided a platform for collaborative learning, encouraging students to collaborate in teams to tackle challenges presented in the classroom. This facilitated the development of effective communication and teamwork—skills that are integral for success in the real world. This week, equipped with a solid understanding of directions, students devised sequences of events for MTiny. The robot had to engage in daily activities such as eating, reading, and playing before returning to its house. To accomplish this, students utilized program cards, incorporating multiplication or times code cards to repeat specific actions.



MUSIC WITH MTINY

During this week's STREAM lesson, students enjoyed delving into the realms of sound and music with MTiny. The MTiny kit includes a collection of musical coding card notes that can be activated by placing the controller stick on corresponding cards. The class aimed to delve into the fundamentals of sound, vibration, pitch, and various auditory elements. Students explored the musical notes, noting how the pitch rose when playing higher notes. Subsequently, they performed "Twinkle, Twinkle, Little Star" using the musical coding card notes. Following this, each student received a card featuring different sounds and notes. They then played the previously learned song, incorporating sounds of a cat, dog, clown, piano, and an undisclosed mystery sound.



LET'S BUILD A HOME

One powerful tool used in the implementation of STREAM education is the Lego Classic kit, which primarily consists of variety of lego blocks. The kit provides a wide range of building possibilities, allowing students to exercise their imagination, engage in design thinking, and apply scientific principles while constructing various structures, including homes. The aim of the lesson was to build a home which consist of a house, a pet and a vehicle. By allowing students to build homes using Lego bricks, the class was able to stimulate their creative thinking skills. Students were encouraged to design and construct unique homes, exploring architectural concepts and employing problem-solving strategies.



OUR BODY

The human body is an astounding creation that encompasses a vast array of intricate systems and functions. In the activity the students looked at the different bones and joints in a Human Skeletal System. They were given different bones and made to put it together to form the skeletal system. Understanding the human body at a young age empowers students to value and take care of their own well-being. By familiarizing themselves with the different systems, such as the skeletal, muscular, digestive, respiratory, circulatory, and nervous systems, they can start cultivating healthy habits and curiosity about their bodies. This knowledge will serve as a solid foundation for further exploration and learning in the years to come.



HOW JOINTS WORK

The WhalesBot U10 is an advanced educational tool designed specifically to introduce young learners to the fundamental concepts of STREAM. Combining robotics, programming, and interactive learning, this platform provides an immersive and hands-on experience. Its user-friendly interface allows students to engage in practical exploration and experimentation, enhancing their understanding of complex scientific concepts. The primary objective of this week's STREAM lesson was to introduce Grade 2 students to the basic structure and functions of the Skeleton system of the human body and to recreate some joints using the WhalesBot U10. Through the lesson the students understood different joint and how mechanical joints are inspired from the human body.



GEARS

Gears play a pivotal role in various mechanical systems and are important components in our daily lives. Teaching gears at an early age not only helps cultivate young minds' interest in science and engineering but also lays a strong foundation for advanced knowledge in the future. The WhalesBot U10, a user-friendly educational robot, offers an interactive platform for engaging students with practical demonstrations of gear mechanics. Through the lesson the students learned about the different functions of the gears, which are changing directions and varying speed. They implemented the concept they learned using the whalesbot U10 inculcating a thorough knowledge of the concept taken. As technology continues to evolve, integrating educational robots like the WhalesBot U10 presents a tremendous opportunity to foster a generation of young learners who are well-prepared for the challenges of tomorrow.



DANCING MONKEY A TOY MACHINES

Within the vast orchestration of human existence, machines take center stage, playing a transformative role. From shaping the trajectory of history to influencing the rhythms of daily life, the impact of machines is both profound and multifaceted. This week, students took a moment to contemplate the significance of machines in their day-to-day existence. They came to the realization that machines enhance and simplify our lives. As part of the learning experience, they were tasked with constructing a toy machine utilizing gears and axles from the WhalesBot U10 kit. Following the instructions provided in the manual, the students successfully created a dancing monkey. This engaging activity not only fostered their creativity but also instilled valuable skills in observation and listening.



SIMPLE MACHINES: CREATING A FISHING ROD

The second-grade class delved into the realm of simple machines, seeking to acquaint students with the essential principles underlying these devices. The primary goal was to empower students with an understanding of the fundamental functions, various types, and practical applications of simple machines. Exploring five distinct types—Inclined Plane, Wedge, Pulley, Wheel and Axle, Screw, and Lever—the students not only became familiar with these mechanical elements but also applied their knowledge creatively. During a vacation, they ingeniously utilized these simple machines to devise a solution for catching fish. The lesson not only covered the theoretical aspects but also fostered practical skills such as problem-solving, critical thinking, and collaborative teamwork.



BUILD A SKYSCRAPER

Students were assigned the task of building a skyscraper using the Whalesbot S30 kit. The challenge was to build the tallest structure within a given time. The building had to be sturdy to last long as well. They measured the height of their skyscrapers using a measuring tape. The tallest skyscraper was declared the winner. The activity helped the students to enrich their engineering skills along with improving their teamwork and time management. They explored the concept of measurement of length while having fun.



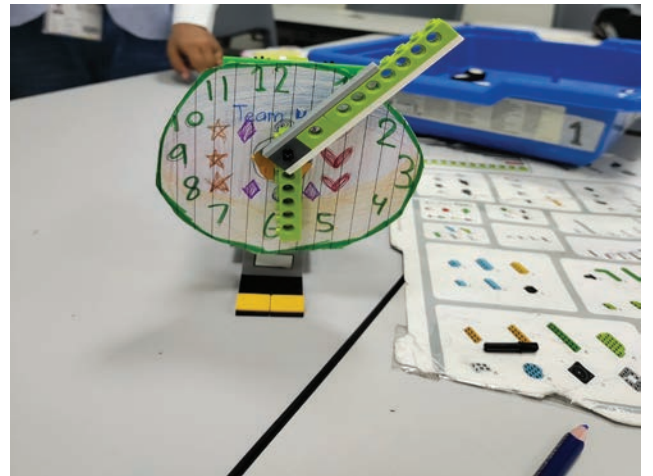
A BALANCING ACT

Students worked together to design and build a weighing scale using the Whalesbot S30 kit. They built and experimented with objects of different mass to observe its effect on the balance. Comparing the mass of two objects using the scale to help find the heavier object. The concepts of measurement of mass and differentiation helped students improve critical thinking skills. This strengthened the problem-solving and collaboration skills as well.



WEDO ANALOG CLOCK

The students explored the concept of time measurement through this fun activity. They collaborated in groups to build a working analog clock using the Lego WeDo 2.0 kit. Instructions were provided to assemble the clock. The students used different Lego WeDo parts to create the clock, including gears and motor. It was a challenging task to fit the gears properly and make the clock work, as the teamwork made it possible. They used creativity to design some interesting dial for their clock. Finally, the clock was programmed to display the time. Students were excited to present their clocks in front of the class.



THE LEGO MOVIE

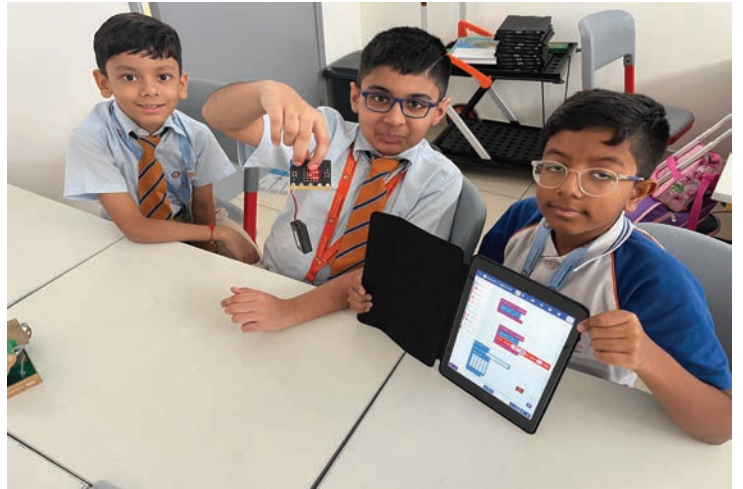
Movie making through the art of stop motion was the highlight of the session. Each group planned and scripted a different story using at least two characters. They used the Lego community starter kit to create unique design for the movie theatre setup. Different objects were created to make the set interesting. Curiosity arose when they had to use lego mini figures for the characters and made them come alive through the stop motion studio application. Excitement to present their movie to the class was awaited by each and everyone ,it was the Climax of the session.



MICRO:BIT STATES!

Integration of Micro:bit and game development proved to be an effective way to teach the concept of states of matter.

Micro:bit coding to display text on the LED screen was the task. They had to display the arrangement of molecules on the screen with Chemical names. The hands-on and interactive approach enhanced student engagement and deepened their understanding of the topic. This lesson plan successfully combined states of matter with practical coding skills, fostering a holistic learning experience for the students.



CLEAN IT TO DRINK IT!

The Lakeshore Water Filter Activity was designed to engage students in a hands-on learning experience while reinforcing their understanding of fractions, solute, solvent and mixture. Students were tasked with designing and constructing a water filter using the provided materials.

Teams successfully constructed water filters and observed the removal of impurities from the polluted water. They accurately calculated fractions to represent the proportion of purified water, demonstrating their understanding of the concept.

This activity promoted critical thinking and problem-solving skills in a real-world context, making it a valuable addition to the STREAM curriculum.



STOP THE DIGESTION!

The stop-motion animation project on human digestion provided a dynamic and engaging way for students to explore and understand the complexities of the digestive system.

The students investigated the human digestive system and then successfully created the stop motion animation. After the animation they calculated the time taken by different digestive organs and also presented their animation before the class.

Students not only enhanced their scientific knowledge but also honed their research and estimation skills. This interdisciplinary project exemplified to foster creativity and critical thinking while making complex concepts accessible and enjoyable for young learners.



BRUSH IT!

The creation of an automatic toothbrush using Lego Spike Essential was a hands-on activity undertaken by students. The primary objective was to engage students in a practical application of engineering and robotics while emphasizing the importance of dental hygiene.

Students successfully designed and built the functional automatic toothbrush using Lego Spike essential. They also tested and presented it before the class.

The project encouraged creativity, problem-solving, and critical thinking while highlighting the significant role a toothbrush plays in maintaining a healthy smile and overall well-being



PROSTHETIC ARM!

The project instilled empathy and awareness for the challenges faced by individuals with disabilities. Students designed and built a functional prosthetic arm using the Lego WeDo 2.0 robotics kit and tested it to lift objects. Teams had a healthy by a challenging competition where they had to collect maximum objects in 1 minute. Competition was fun.

Addressing a real-world problem was the key in this session. This enhanced students problem-solving skills and helped them learn the value of inclusivity and technology's positive impact on people's lives.



DOG HOUSE!

Fractions are an essential concept in mathematics, and their practical application is crucial for real-world problem-solving.

Students planned their doghouse model. They determined the dimensions of walls, roof, and other components using fractions and then built it using Lego. After completing their models, students presented their doghouses to the class.

The LEGO Doghouse Model activity successfully integrated fractions with hands-on construction, achieving its educational objectives. Students not only improved their fraction skills but also developed problem-solving abilities, creativity, and teamwork.



HEALTH INDUSTRY IN UAE!

The Health Gadget Building activity successfully combined health education, technology, and hands-on learning to engage students in promoting their own well-being. Students by researching, designing, and building health gadgets gained knowledge about health topics. They developed important skills in coding, problem-solving, and teamwork using micro:bit and Lego. This activity served as a model for integrating health and technology in education. Equipping students with tools and knowledge helped to make healthier choices in their lives.

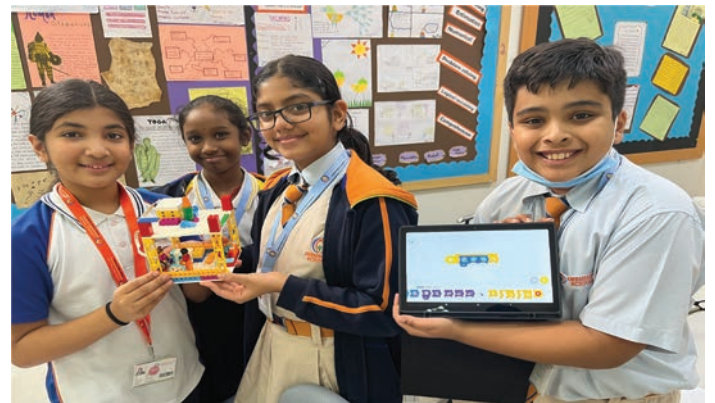
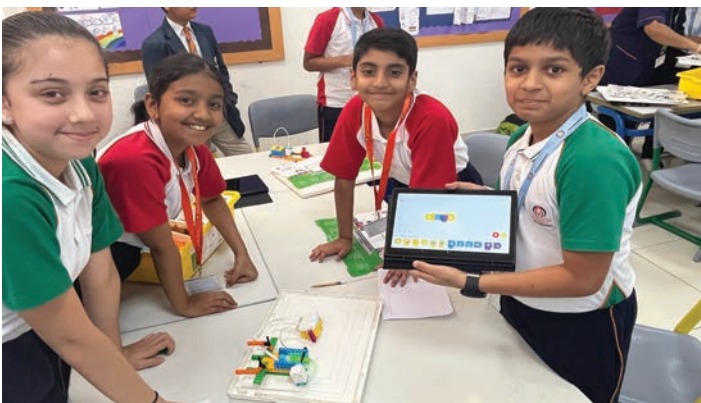


MUSCLES HEALTH !

To design and construct a functional exercise machine was the task. Students effectively researched and designed astronauts muscular and cardiovascular systems in a microgravity setting.

This machine was intended to enable a variety of exercises, such as resistance training, cardiovascular workouts, and flexibility exercises, to ensure astronauts overall fitness and health during space missions.

Students worked in groups to explore a specific muscle before building, coding, testing, modifying, and presenting a workout machine prototype using the Lego Spike Essential kit. They investigated many muscles of the body and concentrated on one. In this activity, students demonstrated exceptional creativity and critical thinking skills.



MICRO:BIT PEDOMETER

Students explored the Micro:bit device by designing and building a pedometer. They used the in-built acceleration sensor of the micro:bit and programmed it to detect the movement while walking. The movements were calculated to display the steps on the micro:bit's in-built LEDs. Some groups also tried to make the pedometer into a wearable device. Finally, the teams tested their device and observed the readings to match the number of steps taken. It was a fun way to learn some programming and engineering skills.



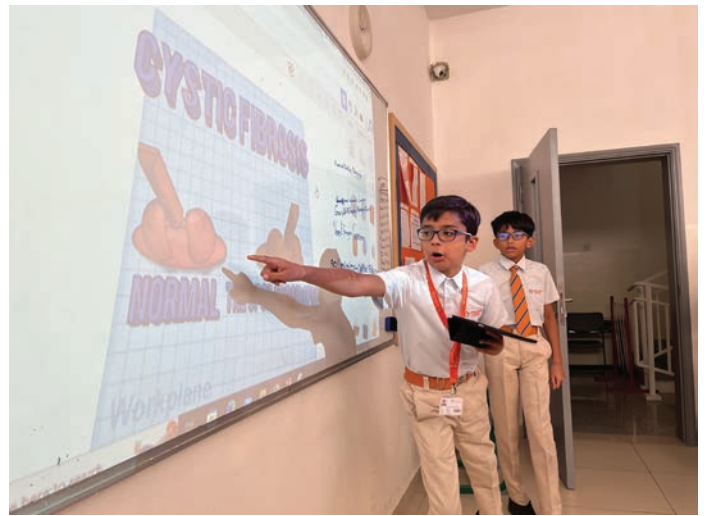
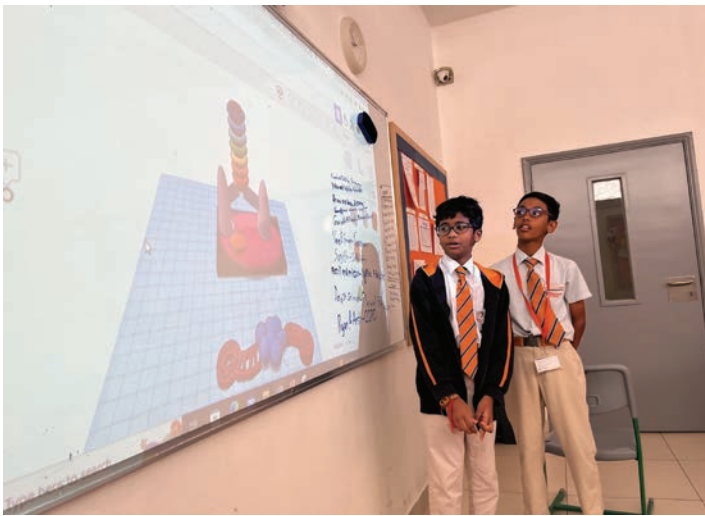
TINKER YOUR RESPIRATION

3D designing using Tinkercad to design a 3D model of the human respiratory system was the task. They used different shapes and modified them to design the lungs, the trachea and bronchi. Some groups were able to add more details to their design. Students were proud to present their design to the class. The activity focused on developing their artistic skills while enriching their science and mathematics concepts. Reading through the functions of respiration which occurs in fractions has amazed every one!



RESPIRATORY DISEASE MODEL

Using the previous weeks Tinker cad designed model the students had to modify their respiratory system model to show the effect of any respiratory disease. After adding research information on different respiratory diseases, each group chose a rare respiratory disease. Then they modified their previously made 3D designs to show the effects of that disease. Students were eager to present their final design to the class.



RACING CAR WITH SPIKE PRIME

Lego Spike Prime kit to build a simple racing car was the activity. The objective was to make the car stop upon bumping on the wall, and take a turn back to reach the starting point in the shortest amount of time. While it was challenging to design and build a car using the pressure switch to sense the wall bumping, it was even more challenging to program the car to turn exactly 180 degrees. But the students tested their car many times and made the necessary adjustments. Finally, their car was ready for the race. The activity helped the students build their engineering and programming skills while having a lot of fun.



INTRO TO EVIVE!

The "Introduction to Evive Starter Kit" activity successfully achieved its objectives of familiarizing students with the Evive platform, teaching basic electronics concepts, and promoting hands-on learning, creativity, and problem-solving. It served as an excellent starting point for students to explore the exciting world of electronics and technology.

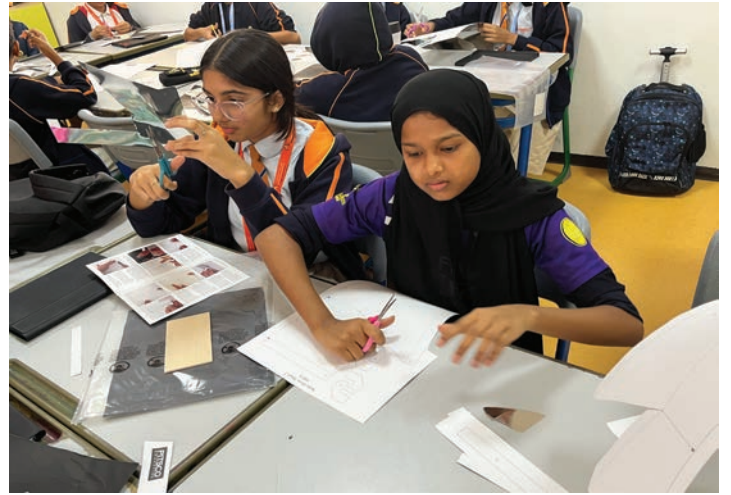
Students were also given task to light and blink the different color led with a simple code and different inputs. They were motivated to learn this new skills of coding and electronics.

The activity promoted problem-solving and critical-thinking skills, as students troubleshooted issues with their projects.



HEAT THE FOOD!

The activity conducted involved building and testing a Pitsco solar oven to explore various methods of heat transfer and observe its practical application in cooking food. Students in teams participated in a kahoot quiz on heat transfer and then guided to design and build their own solar oven. Designing and building a solar oven required the engineering skills. Students used their engineering skills of planning and building the oven and got ready to test the oven.



SOLAR OVEN TO SAVE ENVIRONMENT!

Pre built solar oven was used to test food keeping outside under the direct sunlight. Pasco Temperature sensor and sparkvue application was used to measure the temperature inside the oven. Few teams got 90 degree celsius temperature inside the oven and used some food items also to test the oven. After the testing they discussed the application of conduction, convection and radiation in the whole process.

Students gained a deeper understanding of the three modes of heat transfer and their real-world applications. They also applied problem-solving skills during the construction of the solar ovens and in interpreting their observations.



INSULATE THE HOUSE!

The "House Insulation and Temperature Measurement" activity successfully engaged students in exploring insulation concepts and heat transfer mechanisms through hands-on experimentation.

Begin with a discussion on the importance of insulation in maintaining comfortable indoor temperatures. Teams of 3 designed and build houses using cardboard and consumables to check how the insulation works in houses.

After the building students were asked to check the inside temperature of the house under the sunlight and asked to make strategy to reduce that temperature.



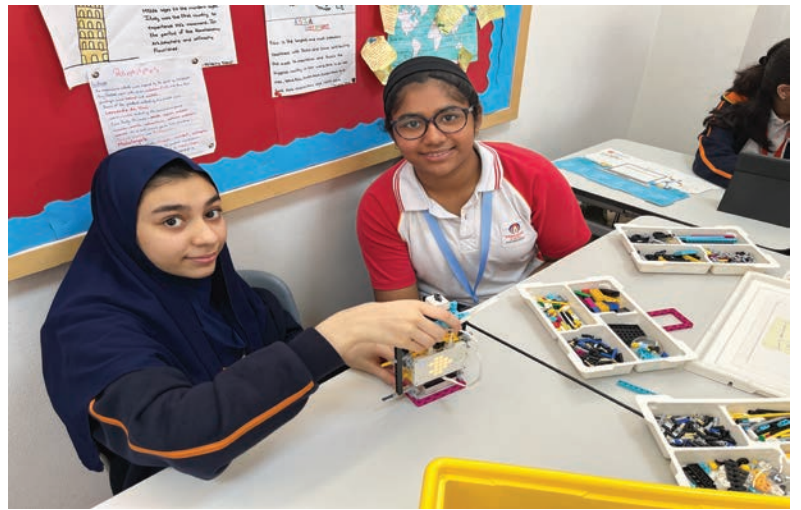
STRETCH WITH DATA!

The session commenced with a practical exercise focused on Yaw, Pitch, and Roll. The task was the creation and programming of a Yoga ring. Their objective was to code the ring to detect and illustrate body movements on a line graph, subsequently allowing them to assess the accuracy of their exercise routines. This activity provided valuable insights into the potential role of devices in assisting with posture during both exercise and everyday activities. Moreover, it nurtured their abilities in innovation and creativity.



SQUAT JUMPS!

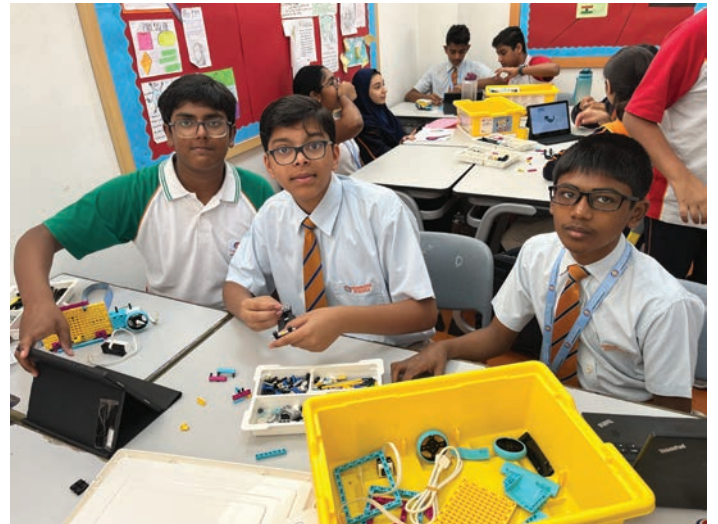
This activity titled "Squat Jumps" using LEGO Spike Prime was organized to introduce students to the concept of potential energy while fostering hands-on learning, problem-solving, and data analysis. In this activity students in teams built the lego kettlebell to calculate the potential energy during the squat jumps. They also coded it to see the graph representation and calculated energy after the jump. It provided students with practical insights into potential energy while fostering problem-solving skills and data analysis.



WATCH YOUR STEPS!

The LEGO Spike Prime Pedometer Design and Building activity successfully integrated hands-on learning, and creativity. It provided students with a practical introduction to pedometers and the opportunity to design, build, and program their own devices. Students in teams build the pedometer and a station to showcase the energy level. Additionally, it emphasized the importance of monitoring physical activity and showcased how technology can assist in achieving health-related goals.

Critical thinking, creativity and technical skills were strengthened with this activity.



PEDOMETER AND STEPS - 2!

Modification of the pedometer model and coding the device to calculate the kinetic energy of a person while walking was the task. This task started with displaying the steps on the screen of the Lego Spike Hub and then finally calculated the kinetic energy needed to walk in joules and displayed on the screen.

After calculating the kinetic energy teams were challenged to display the energy level on the station using the pointer. Students loved the session and understood the insights of coding and science in STREAM session.

