مدرسة امباسادور
AMBASSADOR SCHOOL
INSPIRE INQUIRE INNOVATE

STREAMING FORWARD

October 2025

VERY GOOD
DSIB RATING

DANCING HEN

An animated clip of a hen was the session held to showcase both their creativity and coding abilities. Students customized the hen sprite by painting it and brought it to life through animation using the PictoBlox App. Students presented the programming logic they implemented, detailing how each block and step contributed to the animation.

This activity allowed them to integrate programming skills, artistic expression, and subject knowledge, while also enhancing their ability to communicate and present their work effectively.

BEAM BRIDGE

Students applied the engineering and design process, using the following criteria: each bridge had to be at least two hand spans long, stand without external support, and remain both stable and sturdy.

Students tested their bridges by gradually adding weights to assess their strength, stability, and durability. To enhance their designs, many incorporated supports, pillars, and trusses, mirroring techniques used by real engineers.

The bridge that withstood the maximum weight was a testament to thoughtful planning, creativity, and problem-solving. That team was crowned for the best design.

PAPER HOUSE

In this activity, students followed step-by-step building instructions to fold paper and construct a 3D model of a house. Students develop their fine motor skills, enhance their spatial awareness, and learn the importance of precision and patience. Students explored how paper can be folded in different ways to create strong and stable structures, just like the materials used in real buildings.

Paper is a sustainable material—it can be reused, repurposed, and recycled. They reflected on how making small, mindful choices, such as recycling and reusing materials, can help keep our planet clean and green. This activity beautifully blended creativity, engineering thinking, and environmental awareness, giving students a sense of pride in building something meaningful with their own hands while caring for nature.

MEASURING DISTANCE USING A CAR MODEL

Built cars by carefully following step-by-step building instructions. During the process, they learned about the gearbox and worm gear to control movement and rotation. As the car moved, students observed that the motion turned the pointer on a non-standard circular dial with numbers, allowing them to take measurements between two points in real time. This project not only strengthened their understanding of mathematical concepts like measurement but also gave them practical insight into engineering principles, mechanics, and the design of simple machines.

Overall, it was a fun, engaging, and highly educational activity that combined creativity, critical thinking, and problem-solving in a real-world context.

SMART BUS

A smart bus model was used with a color sensor to simulate real-life functionality. Students explained that the application of a sensor enabled the bus to respond to different color inputs. Using icon block coding, they programmed the model to perform specific tasks and respond to conditions accurately. The mathematical skill of addition with carryover was embedded while they coded to record the output.

Through this activity, they successfully combined mechanical design, coding logic, and mathematical application in a hands-on project.

SOUND POLLUTION

Students applied their real-world understanding of environmental issues to design an interactive alarm model that detected sound pollution using a sound sensor. They programmed their models by effectively utilizing the motor, buzzer, controller, and sound sensor to ensure proper functionality.

The skill to integrate design and technology was observed in their models. Variations of detecting loud sounds by activating a buzzer and creating alert movements. This strengthened their coding and engineering skills and enhanced their awareness of how technology can be applied to address real-world challenges such as noise pollution.





TREE HOUSE

The task was to design and build a motorized roof prototype for a treehouse that opened and closed through programmed commands. Using the broadcast concept in programming, students coded the system to send a message when the loudness block detected sound. This message triggered the display of additional answers and then sent another message to the motor, which responded by opening or closing the rooftop.

Focus was on the application of sound concepts, mathematics, engineering, and programming logic. Each team was able to connect STEM concepts in a creative and meaningful way.

MARK MY COMMUNITY

The students programmed the bot to navigate through different destinations on the community map. The mathematical skill of addition was used to match the number blocks to the corresponding locations on the map to accomplish each challenge successfully. The sequence of coding led their mTiny bot to complete the task. This enhanced their skills to communicate and use of correct coding vocabulary with confidence.

It was a delightful session where students not only strengthened their math and coding skills but also learned the importance of teamwork, planning, and perseverance while achieving their goals.

ARCHEOBOT

The students designed, constructed, and modified a driver base model of a vehicle bot, demonstrating their engineering and problem-solving skills. They programmed their bots to move forward, backward, turn right, and turn left using repeat code blocks, applying logical thinking and computational skills. Additionally, the students incorporated their understanding of multiplication and loops to program the bots to drive in patterns of squares, efficiently covering a designated area.

This hands-on activity allowed them to integrate STREAM skills—Science through understanding motion, Technology through programming, Research through vehicle design, Engineering through construction, Arts through creative problem-solving, and Mathematics through multiplication and spatial reasoning—into a cohesive and engaging learning experience.





AUTOMATIC TRASH RECYCLING MACHINE

Students designed and built a prototype of an automated trash sorting machine using LEGO Spike Essential. They programmed a color sensor with text-based coding to detect blue items as recyclable and red items as non-recyclable.

Students used coding and engineering skills, explained and reinforced the concept of recyclable and non-recyclable materials, demonstrating the use of technology to support environmental awareness and sustainability.

ELECTRIC PUPPET

This was an exciting engineering activity, where they designed and constructed an electrical model of a puppet demonstrating a gear mechanism. The importance was laid to learn the working principles of gears, rotational motion transfer, and control. They explored material science and design to create costumes using both natural and man-made materials. Students differentiated materials, considering texture, durability, and sustainability, to design innovative and creative costumes.

This activity encouraged critical thinking, problem-solving, and creativity in designing functional models.

MULTIPLICATION BUDDY

Enthusiastic pupils worked on the PictoBlox App. They learned to program a multiplication application, being creative and logical. The students identified and used different code blocks from the palettes — including motion, events, control, look, say, operator, and variable — and arranged them in the correct sequence to complete their tasks . Animated projects were used to demonstrate multiplication answers to number problems.

This task reinforced their understanding of multiplication, computational thinking, sequencing, and problem-solving skills.

VINCIBOT - SENSE THE COLORS

VinciBot to “Sense the Colors” was the task. Working in teams of three, they programmed the robot using tablets to detect colored tiles on the mat with its built-in color sensor. Once a color was detected, VinciBot displayed the same color through its onboard LEDs, creating a vivid and interactive experience. The classroom buzzed with excitement as students refined their codes, tested their robots, and celebrated each successful detection.

This hands-on activity deepened their understanding of sensors, logic, and programming while strengthening collaboration and creativity, turning learning into a truly colorful adventure in robotics.

FLOOR PLAN DIVISION

Blending creativity with math, students stepped into the role of young architects, using digital tools to bring their ideas to life. Working in pairs on tablets, they designed a detailed school building using the Floor Plan Creator app, starting with a ground floor that included classrooms and a cafeteria. They applied division to convert measurements from centimeters to meters and used it to plan spaces logically, adding a first floor with a library or lab. Adding stairs and a playground brought their designs to life.

As they collaborated, they strengthened their understanding of division in real-world contexts while enhancing teamwork, spatial reasoning, and digital design skills through hands-on exploration.

LEGO SHADOW THEATER

With curiosity and teamwork lighting the way, students brought their stories to life through a LEGO Shadow Theater activity. In small groups, they designed a stage using the LEGO Community Starter kit and a paper screen, then used mini-figures and handmade props to act out their stories. Using tablets and the Stop Motion Studio app, they transformed their scenes into short animated films to share with their classmates.

Along the way, they discovered how the position and distance of a light source change a shadow's size and clarity, while nurturing creativity, collaboration, critical thinking, and communication through playful exploration.

SUMO BOT CHALLENGE WITH SPIKE ESSENTIAL

The thrill of engineering met the spirit of teamwork as students designed their own LEGO Sumo robots for an electrifying challenge. With excitement and friendly rivalry in the air, students teamed up to create their own Sumo Bots using the LEGO Spike Essential kit. Working in small groups, they designed, built, and programmed robots strong enough to push their opponents out of the arena in a thrilling Sumo Bot Challenge. Using tablets for coding, they learned how a simple push or pull can create motion, bringing the concept of force to life through hands-on experience.

The challenge encouraged creativity, problem-solving, teamwork, and strategic thinking, as students refined their robot designs to perform better in the arena, turning science and technology into an energetic and joyful learning experience.

BUILD MY MATH HOUSE!

Students using the LEGO Community Starter Kit, students applied HCF, LCM and factors to real-life building problems. In Room Size Challenge, they helped two LEGO families divide their plots into equal rooms — discovering that the HCF. In Floor Tile Challenge, they used tiles to cover the rooms evenly, learning how factors help choose the perfect tile size. Through building, measuring, and teamwork, students saw how math concepts like HCF, LCM and multiples connect to real-world design.

VINCI BOT INTRODUCTION AND CHALLENGE MAT!

Students took part in an exciting VinciBot Mission Challenge, where they learned to identify VinciBot's basic features and sensors and program it to move accurately on a colorful mission mat. Working in teams, they coded their robots to navigate and reach different colored zones — each color earned points, and the team whose Vinci Bot reached all colors successfully was declared the winner! The session encouraged teamwork, coding precision, and strategic thinking, turning math and robotics into an engaging hands-on adventure

PARK DESIGN CHALLENGE!

In this challenge, students stepped into the shoes of young architects and designers to create symmetrical park layouts using the Vinci Robot. They learned to identify and apply different types of angles (acute, obtuse, right) while exploring the beauty of symmetry in nature and design.

Working collaboratively, they programmed their robots to draw geometric patterns, combining mathematics, design thinking, and robotics. The project encouraged students to think like engineers — solving problems, refining ideas, and communicating their designs with confidence.





MECHANICAL CLOCK!

This week our students turned into junior mechanical engineers! Using LEGO Blix kit and gears, they explored how rotational and circular motion work together inside a clock.

Students built their own mechanical clock models and experimenting with gears, axles, and motion to understand how time is measured. They also connected this learning to real-world phenomena such as the Earth's rotation and revolution.

It was a perfect blend of science, math, and engineering, where students experienced how machines mimic natural movements.

FESTIVAL ANIMATION PROJECT!

Bringing art and technology together, students created stop-motion animations using the LEGO Community Starter Kit and the Stop Motion Studio app. They chose from festivals like Diwali, Christmas, or Halloween and worked in teams to craft short animated stories that celebrated cultural traditions.

From storyboarding to animation, students showed remarkable creativity and patience — capturing one frame at a time to bring their stories to life. The lesson helped them appreciate diversity, collaboration, and digital storytelling.

IS OUR AIR SAFE?

Students became young environmental scientists as they investigated air quality using the PASCO CO_2 sensor and SPARKvue software. They first learned how to operate the sensor and application, understanding how carbon dioxide levels relate to ventilation and human health. Students then explored different areas of the school—classrooms, corridors, and playgrounds—to collect and compare real-time CO_2 data.

IS OUR AIR SAFE?- 2

Students explored a PhET simulation to visualize the relationship between CO_2 concentration and temperature, deepening their understanding of climate change and ventilation.

Students then used SPARKvue coding to create a conditional alarm or warning system that indicated pollution levels at specific locations. By recording, analyzing, and comparing real-time data, they drew meaningful conclusions and presented recommendations to improve air quality around the school. This hands-on experience enhanced their data analysis, coding, and scientific reasoning skills, while inspiring them to think critically about creating a healthier, sustainable environment.

WIND RACERS!

students became young engineers as they explored how air (wind) can create motion through a fun and hands-on Land Yacht Challenge. Using LEGO simple and powered machine kit wheels and bases along with consumable materials for sails, each team designed and built their own land yacht. They tested how the area of a sail—calculated using length × width—affected the yacht's speed and movement when propelled by wind from a fan.

Students collected and compared data on distance and time, analyzing which sail size performed better and why. Through this engaging STREAM activity, they connected scientific inquiry with real-world applications in transportation and renewable energy, while strengthening their collaboration, problem-solving, and data interpretation skills.

RUBE GOLDBERG MACHINE CHALLENGE!

students stepped into the shoes of young engineers and inventors as they explored the fascinating world of simple and complex machines through the Rube Goldberg Challenge. Using Blix kit and Lakeshore simple and powered machine resources, they designed chain-reaction contraptions where one action triggered another in creative and often humorous ways. Students applied principles of mechanics and sequencing, testing and refining their builds to ensure smooth motion without manual interference. This engaging challenge not only strengthened their understanding of forces and simple machines but also built essential problem-solving, critical thinking, and teamwork skills as they cheered each other's creative designs to success.

INNOVATION WITH SIMPLE MACHINES

In this hands-on session, students used the LEGO Simple and Powered Machines Kit to identify, test, and apply the six simple machines—lever, pulley, inclined plane, screw, wedge, and wheel & axle. They then took on the role of innovators, brainstorming real-world problems in their school or community and designing a mechanical solution to address them.

From trash collectors to automatic bag lifters, their ideas reflected both empathy and engineering creativity. Students presented their inventions, discussing their working principles, challenges, and possible improvements. The activity inspired them to see how simple mechanisms can lead to powerful innovations in everyday life.

FABLE - JOINT MODULE

There's no harm in having fun during STREAM class—especially when the Fable hand bot you built starts dancing! Students were thrilled to see their creation come to life while also discovering its real-world applications in industries, cafés, and beyond. Coding the bot to rotate to specific degrees using two servo motors was both challenging and exciting, giving them a hands-on way to connect math and science concepts to robotics in action.

SPACE DEBRIS

Pollution isn't confined to land and water; to our surprise, even space is polluted! But what exactly is polluting the final frontier?

Driven by curiosity, students embarked on a deep research project focused on space debris. They used LeoLab simulations to gain a better understanding of how space junk and operational satellites coexist, and to realize just how dangerous a threat this debris poses to live, essential satellites.

After learning about the theoretical solutions proposed by scientists to address this problem, the students faced a final, critical challenge: How can they identify the most efficient and practical solutions for space cleanup? Students also created a 3D model of their idea on TinkerCAD. The students had a great learning experience on all of their STREAM topics.

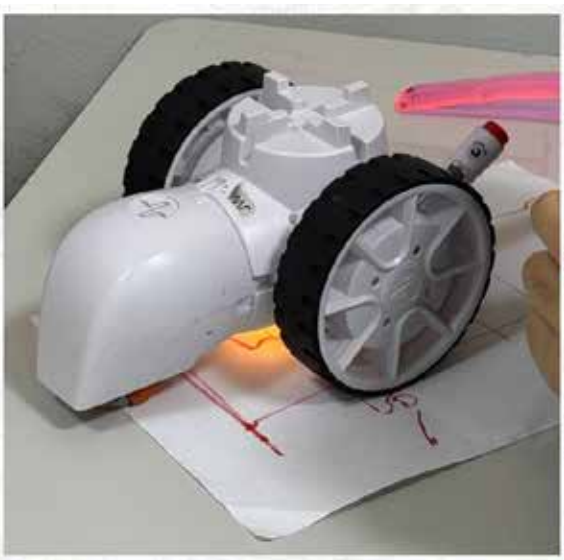
AGRICULTURE INNOVATION

Agriculture plays a vital role in every nation's economy — but how do countries with limited arable land, like the UAE, grow their crops?Students were intrigued by this question and began exploring innovative farming methods used in the UAE. They recalled seeing large circular patterns on the desert landscape while flying over the country and always wondered what they were. Now, they discovered that these circles are actually pivot irrigation systems — a unique agricultural technique used to grow crops in the desert.

With this newfound understanding, students brainstormed creative solutions to address challenges faced by UAE farmers, such as limited water supply and harsh growing conditions. Using LEGO Spike Prime, they designed and built prototypes of their innovative ideas and proudly presented their projects to the class.

DRAW A SCENERY

Drawing by hand is common — but what about programming a Fable Bot to do it? Students explored this exciting challenge while discovering fascinating concepts from Math and Physics, such as angles, speed, and distance. Through trial and error, they learned to calibrate the bot's movements to create beautiful scenery using just basic shapes. The activity combined creativity, problem-solving, and hands-on learning, making it both fun and educational.





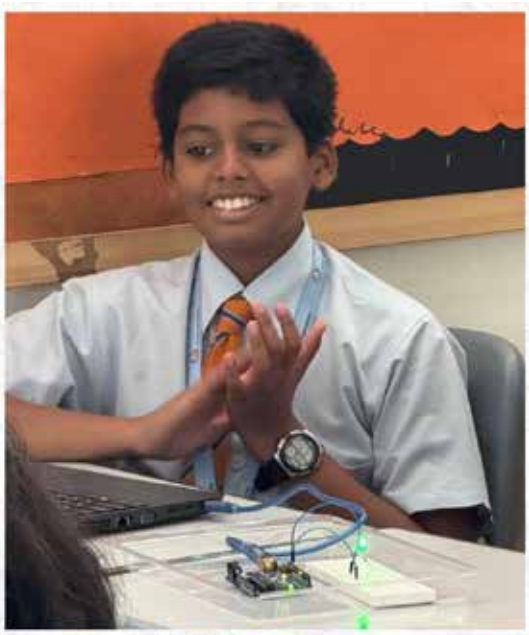
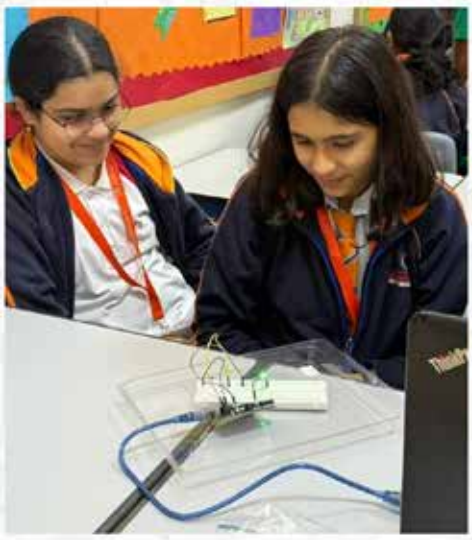
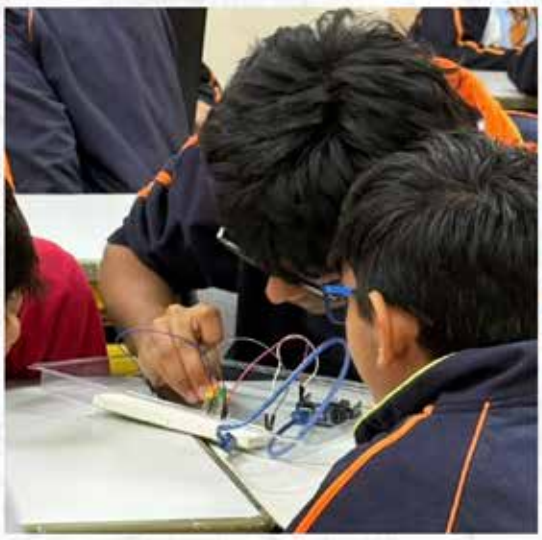
RESCUE BOT

Students explored the concept of disaster management and learned how engineering and robotics play a vital role in rescue and relief operations. Using LEGO Spike, they designed and coded rescue robots and emergency shelters, simulating real-life functions like movement and sound alerts. The activity encouraged teamwork, creativity, and problem-solving while showing how technology can support people during emergencies.

ARDUINO - BLINK CIRCUIT

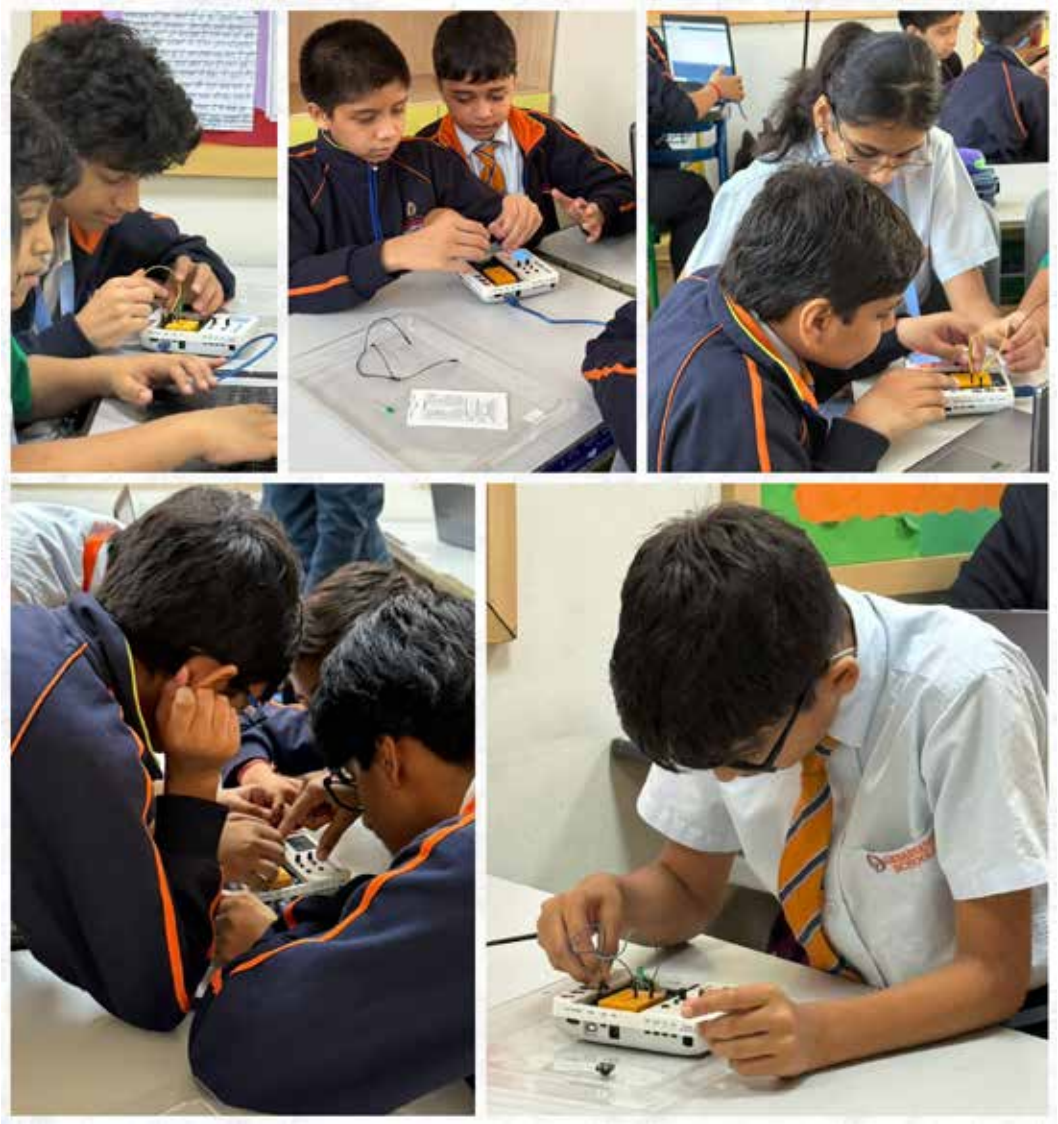
Entering the world of microcontrollers with Arduino is truly a blissful upgrade. From coding to control the physical world around us to designing creative ideas like decorating a room with lights—it's nothing short of a "WOW" moment. Exploring simulations such as real-time traffic lights and simple microcontroller applications made engineering feel both exciting and fun. Adding math into the mix gave students a fresh perspective on why it's important, making the entire experience both meaningful and enjoyable.




ARDUINO - FADE CIRCUIT

Continuing to be inspired by the field of engineering and fascinated by microcontrollers, students stepped into another engaging week of learning with Arduino. This week's focus was on building a Fade Circuit, where learners explored how the PWM (Pulse Width Modulation) pin allows control over the brightness of an LED. Moving beyond simply turning a light on or off, students discovered how to adjust light intensity through coding, linking real-world applications of electronics, physics, and mathematics. The activity sparked curiosity and excitement as students witnessed how programming can bring engineering concepts to life.



DRAW WITH FABLE

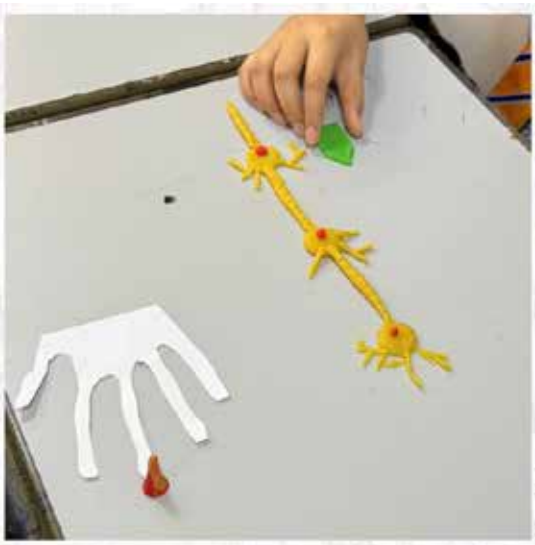
Isn't it fascinating to see a robot make coffee or tea? But why stop there! Our students took it a step further by programming the Fable Bot to draw using its spin and joint modules. Initially, getting the angles and turns right—moving from theoretical understanding to practical application—was quite challenging. However, with experimentation and teamwork, it soon became an enjoyable and rewarding experience. The students explored concepts of distance, angles, and speed in an exciting, hands-on way. It was truly a fun and engaging class filled with creativity and learning.

SAVE SATELLITE USING THE GIZMOS CASE STUDY

While scientists around the world are exploring ways to reduce or safely remove these debris, our students took on the challenge with creativity and curiosity. They focused on designing machines and devices capable of distinguishing debris from non-debris, capturing it, and managing it effectively. Students used GIZMO for case study and Lego-spike prime to build one. Different teams brainstormed unique solutions, each presenting innovative ideas on what could be done with the collected debris. It was inspiring to see their problem-solving skills and imagination in action!

ABOUT NEURONS

From modeling the birth of a neuron to visualizing how signals pass through it and connect with other neurons, students explored the fascinating world of the human brain through stop-motion animation. Using clay, they carefully crafted neuron models, bringing creativity and science together in an exciting, hands-on way. The activity not only deepened their understanding of how neurons function but also sparked enthusiasm and teamwork throughout the class. It was truly a fun and enriching learning experience!






SOLAR SPRINT CHALLENGE-2

In their STREAM activity, Students followed the engineering design process—plan, build, test, and redesign—to construct solar-powered cars using the Pitsco Solar Car Kit. They explored how solar energy converts into electrical energy and then into motion. After building the cars, students collected and analyzed data on time, distance, and speed, comparing the performance of their new Pitsco cars with the Artec Mini solar cars from their first activity. They observed how improvements in design and materials led to faster, more efficient cars, gaining hands-on experience in problem-solving, data analysis, and sustainable energy concepts.





FOLLOW ME!

Students explored the concepts of light reflection and refraction and applied their learning by building and programming LEGO EV3 robots. Their robots were designed to follow light and navigate with different intensity of light (refractivity), combining science concepts with hands-on robotics and coding skills.

FOLLOW THE LINE

Students learned to program LEGO EV3 robots using color sensors to follow lines of specific colors. They explored how light reflects off different surfaces, measured light intensity, and coded their robots to make decisions based on these readings, combining hands-on coding with practical science concepts. Students also solved the line following challenge later.

FESTIVE LIGHTS CIRCUIT DESIGN CHALLENGE!

Students explored the fundamentals of electrical circuits using the Evive Kit and breadboards. They learned to identify components like LEDs, resistors, and wires, built simple circuits, and gained an understanding of basic Arduino circuits, with or without coding.

DANCING LED LIGHTS - CHALLENGE!

Students used the Evive Kit and breadboards to connect and control multiple LEDs, exploring how coding can automate and sequence lighting patterns. They wrote simple programs using pictoblox block coding or Arduino IDE to make LEDs blink, chase, and “dance,” while debugging and refining their circuits. Students also applied creativity by designing festive-themed lighting displays.