مدرسة امباسادور
AMBASSADOR SCHOOL
INSPIRE INQUIRE INNOVATE

STREAMING FORWARD

February 2026

VERY GOOD
DSIB RATING

SMART SHAPES WITH CODING

The PictoBlox App was used to create programs that drew a variety of shapes using Motion, Event, and Pen Extension blocks. They learned to sequence commands and control movement, to efficiently form geometric patterns.

This activity strengthened their STREAM skills: they applied mathematical concepts like shapes, used technology to code digitally, exercised engineering and logical thinking to plan movements, and expressed creativity through art in designing shapes.

Overall, the task enhanced their problem-solving, critical thinking, and computational thinking while making coding a fun and visual learning experience

MOTORIZED GIRAFFE

Exciting programme to build a motorized giraffe model and use code blocks to program the rotation of its tail. This helps them understand how motors, movement, and coding work together. Through this hands-on activity, they learned about the giraffe's habitat (grasslands), its food, and its adaptations, and discussed how features like a long neck and tail help the animal survive in nature.

The task integrated STREAM skills by combining science concepts of animal life, technology, and robotics through coding and motor use, engineering through design and construction, art through creative model building, and mathematics through sequencing and understanding rotation, fostering curiosity, problem-solving, and logical thinking.

FUN WITH THE SCIENCE OF GEARS

Students designed and built a mechanical hockey player, using types of gears and their functions. They learned how gears transfer motion and force from one part of a mechanism to another, helping the hockey player move and launch the puck. They then used their model to launch the puck, reinforcing number recognition in a fun and engaging way.

Students integrated STREAM skills—applying Science concepts of force and motion. They used technology through Engineering to improve the mechanism. Art in creatively building their hockey player, and Mathematics by identifying numbers and understanding movement patterns.

POWERING UP WITH FRACTIONS!

Building a model with the application of fractions to maximize the usage of space. They allocated half of the space for houses, one quarter for a garden, and one quarter for recycling bins, learning how fractions help organize and manage space effectively. Later integrated a simple electrical circuit and connected an LED light to illuminate the houses, combining math, engineering, and technology.

This project helped develop skills of planning, measurement, and basic circuitry work together, while also encouraging creativity, problem-solving, and teamwork as they brought their miniature community to life.

MTINY'S FOOD HUNT ADVENTURE

The mTiny bot was used to navigate the challenge mat by planning clear step-by-step instructions to reach different food destinations, avoiding obstacles along the way. They analyzed the mat, predicted the required turns and movements, and adjusted their commands to ensure accurate navigation. Each time the bot successfully reached a food destination, students earned 5 points, motivating them to complete multiple tasks. At the end of the activity, they calculated their total score by adding the points earned, reinforcing numeracy skills.

This hands-on task integrated STREAM skills by encouraging Science (understanding movement and direction), Technology (using mTiny and coding cards), Robotics (controlling and debugging the bot), Engineering (problem-solving and optimizing paths), Arts (visualizing routes on the mat), and Mathematics (counting, addition, and score calculation), while also strengthening logical thinking, collaboration, and perseverance.

TOWER ENGINE

A heavy-duty vehicle was operated using a remote control to move different colored blocks out of a marked circle. Through this hands-on challenge, they explored the application of forceand its effect in the movement of objects. Further, they improved their control and coordination skills. Each colored block carried a specific point value, and as students cleared the blocks, they calculated their total score using repeated addition, strengthening their understanding of basic math concepts.

The activity encouraged problem-solving, teamwork, and strategic thinking, as students planned how to move the vehicle efficiently while applying both engineering and mathematical skills in a fun, real-world context.

PULLING BOT

Students built a pulling bot and improved it by adding extra weight and larger wheels, which increased friction and made the bot more stable. Through this activity, they learned how friction, weight, and surface contact affect movement and pulling power.

The project incorporated STREAM skills: they explored the science of forces and friction, applied technology and engineering to design and enhance the bot, used mathematics to measure weight and wheel size, engaged art in creatively designing the bot.

TIME IN ACTION THROUGH STREAM!

The " analogue clock " itself causes curiosity to work collaboratively, demonstrating creativity, teamwork, and problem-solving skills. They measured and assembled the clock components, ensuring accurate placement of numbers and clock hands to represent time correctly.

Through this hands-on activity, they applied mathematical concepts such as reading time, sequencing events, and understanding intervals. Integrating technology, they created a digital record of their daily activities timeline using the clock and story visualizer software, combining visual storytelling with time concepts.

LIGHT AND SHINE

VinciBot was programmed to measure light and show the readings on its screen. They used this information to make the bot follow a bright light and stop when the light was turned off. Then, they made VinciBot respond to different colors, moving in different directions depending on the color it detected.

The curisoity developed to know more about light that helps detect color because sensors can see how colors reflect or absorb light. They also practiced STREAM skills like coding, problem-solving, observing, and measuring, while exploring how science and technology work together in a fun, hands-on way.

SHADOW PUPPET THEATRE - WHERE LIGHT MEETS IMAGINATION!

Students used light sources and LEGO puppets to explore how shadows are formed. By varying the distance between the light, the puppet, and the screen, they observed how the size and shape of shadows change—shadows became larger when the object moved closer to the light and smaller when it moved farther away. This hands-on investigation helped students understand basic light and shadow concepts while encouraging curiosity, creativity, and observation skills. Through experimentation and discussion, students connected their learning to real-life examples, strengthening their scientific thinking in an engaging and playful way.

DODGE THE BEAM

Students studied infrared (IR) light and explored how IR sensors detect obstacles by sending out invisible light and sensing reflections. They learned that the application of sensors helps robots identify objects in their path and avoid collisions. Applying the knowledge, students programmed VinciBot to navigate safely around obstacles, testing and refining their code better. Students are now confident to use IR sensors in robotics for safe navigation and obstacle avoidance.

The project also integrated STREAM skills: they applied science to understand how IR light works, used technology in programming the bot, applied engineering to troubleshoot and optimize its navigation, and practiced mathematics and logical thinking while designing the program.

ANIMATING DIGESTION IN ACTION!

Students created a detailed stop-motion animation highlighting the importance of different organs involved in digestion and visually demonstrating the journey of food through the digestive system. They applied the concepts of the functions of the mouth, esophagus, stomach, small intestine, large intestine, and liver to accurately show how food is broken down, nutrients are absorbed, and waste is eliminated. Using models, creative props, and frame-by-frame photography, they carefully sequenced each stage of the process to ensure clarity and accuracy.

Students learnt the human body systems while developing creativity, collaboration, sequencing skills, digital literacy, and effective communication by clearly presenting the digestion process through visual storytelling and narration.

HOCKEY FRACTION

The classroom buzzed with excitement as students teamed up to bring a stick hockey game to life using LEGO Spike Essential kits and tablets for coding. Each group designed and built its game, experimenting with moving parts and coding to make the puck glide smoothly. This hands-on process sparked creativity, teamwork, and problem-solving as students planned, tested, and refined their designs to ensure the game functioned well.

Students experimented with playing and recorded their goals and misses. The results were expressed as fractions and compared with their peers. This game helped to explore how fractions work in real-life scenarios, seeing firsthand how parts relate to a whole.

Most students gained confidence in coding and building, and appreciated how mathematical concepts like fractions play a role in everyday activities and decision-making.

FUN WITH CREATOR APPLICATION!

Ideas sparkled across the room as students paired up to bring their own school designs to life using tablets and the Floor Plan Creator app. Each team carefully planned the layout, assigning fractions of the total area to classrooms, playgrounds, libraries, and cafeterias. They measured lengths and widths with precision, translating abstract numbers into a visual and functional space. This activity encouraged creativity, collaboration, and logical thinking as students balanced design ideas with practical constraints.

As the layouts took shape, students calculated the combined fractions of each space to ensure the total equaled a whole building. Through observation, calculation, and discussion, students strengthened spatial awareness and numerical understanding. Each team had experienced the application of turning concepts into a tangible design, gaining confidence in both digital tools and the practical use of fractions.

A SEED'S TALE USING THE STOP MOTION STUDIO APPLICATION

Creativity bloomed as students teamed up to bring a seed's journey to life using tablets with the Stop Motion Studio application, LEGO community starter, base plates, and modeling clay. Each group carefully shaped the seed, roots, shoots, leaves, flowers, and fruits, planning their scenes to show the full growth process. This hands-on activity encouraged imagination, collaboration, and attention to detail as students visualized each stage of development.

With the help of sequences, students observed how a tiny seed transforms into a fully grown plant, identifying roots, stems, leaves, flowers, and fruits along the way. Through designing, filming, and sequencing, they strengthened their understanding of natural processes, storytelling, and planning. By the end, every team had created a lively animation, gaining confidence in digital tools and seeing science come alive through art and creativity.

LINE FOLLOWING WITH VINCIBOT

Curiosity lit up the classroom as students explored how a robot senses and moves along a path. Using VinciBot and tablets with the Matata Studio app, teams first programmed the robot to check and display the difference in light reflection on black and white surfaces. They then tested turning by changing the speed of each wheel. Students observed how the robot moved left and right and adjusted their code.

Finally, they combined sensing and movement to create a working program that guided the robot along the mat. Through testing and improvement, they understood how sensors and motors work together in robotics. The activity built teamwork, logical thinking, and patience as students proudly watched their robots complete the path.

WEATHER STATION & FORECASTING!

Learning about weather by identifying basic weather elements such as sunny, rainy, windy, and cloudy conditions. Through interactive discussions and hands-on activities, students explored the different aspects of weather and how they affect our daily lives. Using the LEGO SPIKE Essential kit, learners built a simple weather station model to represent various weather conditions. They also used block-based coding to simulate forecasting weather for selected cities, strengthening their computational thinking skills. Throughout the week, students developed observation skills, collaboration, and STREAM thinking as they worked in teams to solve challenges. The main resources used included LEGO SPIKE Essential kits, tablets for coding, and classroom visual presentations on weather concepts.

WEATHER ANALYSTS AT AMBASSADOR

Students expanded their understanding of weather by collecting and interpreting real-time weather data around the school campus. Using PASCO weather sensors, learners measured temperature, wind speed, and other environmental factors to observe current weather conditions. They recorded their findings and analyzed the data to make simple weather predictions. This hands-on investigation enhanced their scientific inquiry skills, data interpretation abilities, and teamwork. Students also strengthened their critical thinking and problem-solving skills by discussing patterns in the collected data.

TINKERCAD CASTLE CHALLENGE!

Learning new tech skills using digital design with Tinkercad. They learned how to use basic tools such as move, resize, duplicate, and align to create structured designs. Applying mathematical concepts like measurement, scaling, symmetry, and geometric shapes, students designed and built stable 3D castle models. This project encouraged creativity while reinforcing geometry and spatial reasoning skills. Students demonstrated perseverance and innovation as they refined their designs to improve balance and structure. The resources used included computers or tablets, internet access, and the Tinkercad platform for 3D modeling.

SCHOOL INNOVATION PROJECT WITH LEGO SPIKE ESSENTIAL

The objective of this session was to Innovate Model using LEGO SPIKE Essentials to solve real-life problems within the school environment. Teams collaborated on challenges such as classroom organization, safety improvements, or energy-saving solutions. They designed and programmed prototypes using block-based coding to demonstrate how their models can bring the best innovative solutions.

Students enhanced their engineering design process skills, creativity, leadership, and communication abilities while presenting their final projects.

FROM THE CLASSROOM TO THE FIRST LEGO LEAGUE NATIONALS!

Students learned about the importance of promotion and branding by designing a digital poster for First LL Nationals. They explored how strong visuals and catchy slogans help promote an event effectively.

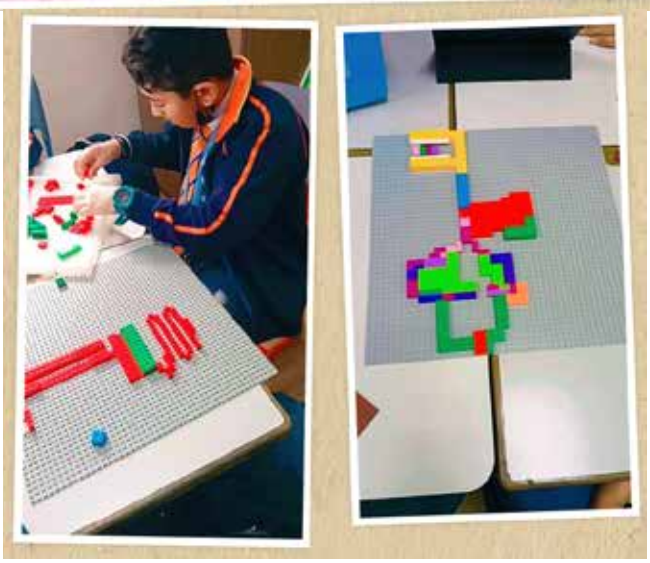
Using AI tools such as CANVA, Chatgpt or Gemini responsibly to generate ideas and content, students applied creativity, teamwork, and communication skills throughout the project. The activity concluded with students presenting their posters and explaining their design choices confidently.

ANIMATED NERVES!

Learning the complex structure and function of the nervous system was simplified and made fun learning by creating and animating a 3D model using Stop Motion Studio.

Students researched a particular neurological disorder and presented how these diseases affect the nervous system, fostering a deeper understanding of their impact on the human body.

Research, creativity, presentation, and digital storytelling skills was strenghtened through this task.



TINKER RUBE GOLDBERG CHALLENGE!

A Rube Goldberg machine and how it uses chain reactions to accomplish simple tasks in complex ways. A Rube Goldberg machine is named after a cartoonist who drew funny inventions that performed very simple tasks in extremely complicated ways.

They identified and described three simple machines—such as levers, ramps, pulleys, wheels and axles, wedges, and screws—and applied this knowledge to design a virtual Rube Goldberg machine using Tinkercad. Students enhanced their engineering design thinking, problem-solving, and creativity skills while practicing virtual modeling. Resources used included Tinkercad, online research materials, and design planning sheets.Tinker Rube Goldberg challenge!

BLIX - LINE FOLLOWING ROBOT!

Students explored how robots follow paths in industrial settings and investigated how infrared (IR) sensors detect black and white surfaces. Using Blix components, they built and used logic blocks to code the line-following robot.

Students tested, debugged, and improved their designs, strengthening their coding, critical thinking, and troubleshooting skills. Resources used included Blix robotics kits, IR sensors, programming tools, testing mats, and classroom devices for coding and analysis.

PROPERTIES OF MATTER

Students stepped into the role of forensic scientists to solve a fascinating mystery. In a simulation based on a counterfeiting case involving rare 1915 coins, they investigated evidence by testing materials for key properties such as mass, volume, density, magnetism, and conductivity. Using digital simulations, they compared different materials, analyzed clues, and applied scientific reasoning to determine how the counterfeit coins were made.

This engaging activity allowed students to connect science concepts to a real-world investigation, sharpening their observation skills and deepening their understanding of the properties of matter in an exciting and meaningful way. Students made of GIZMO to complete this activity of investigation while learning "Properties of Matter".

LEGO MECHANICAL LEG

Learning about human leg functions as a lever system brought the concept to life by building a mechanical leg using LEGO SPIKE Prime. By programming the motor to create a controlled kicking motion, they applied their understanding of force, angles, and movement to kick a ball accurately toward a goal.

Through testing, redesigning, and gameplay, students continuously improved their models to achieve better precision and power. The excitement grew with the Robo Soccer Kick Challenge—starting with a straight goal, progressing to long-distance kicks, and culminating in a thrilling accuracy round where they aimed for target zones and scored as many goals as possible within a minute.

This hands-on activity blended science, engineering, coding, and fun, turning learning into an energetic game of robotic soccer!

FADE CIRCUIT

Students explored the fundamentals of Arduino circuits by building and coding projects such as a blinking LED, alternating LEDs, and a traffic light simulation. Through these activities, they developed logical thinking skills while troubleshooting both hardware and software challenges and worked collaboratively to complete progressive tasks.

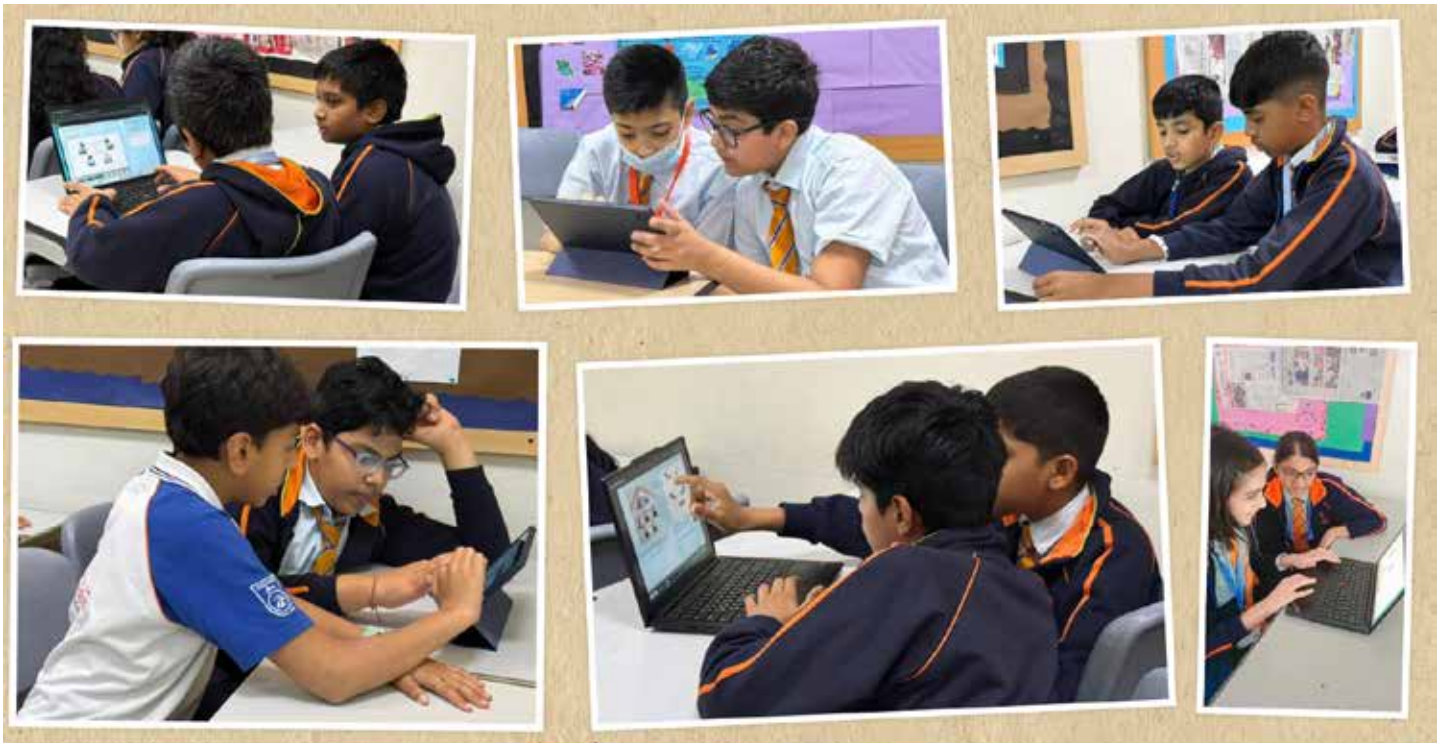
Taking the learning further, students applied their understanding to create a Fade Circuit using the Evive kit, where the LED gradually changed brightness. As an additional challenge, they designed a circuit with a push button control, where the LED turns ON when pressed and OFF when released. These hands-on experiences helped students connect their learning to real-life automation systems such as traffic signals and indicators, making the lesson both practical and engaging

GENETICS - SOLVING THE MYSTERY OF INHERITANCE

In this engaging Genetics lesson, students explored how traits are passed from parents to offspring. They investigated concepts such as alleles, dominant traits, and recessive traits while solving an interesting genetic mystery—how a red-haired child can be born to parents with brown hair.

Using the Mouse Genetics simulation, students experimented with inheritance patterns, predicted outcomes, and tested their own genetic models. By analyzing results from different genetic crosses, they developed a deeper understanding of how traits are inherited. Students also worked toward completing their mission model, applying their knowledge and earning points for successful outcomes.

This hands-on activity strengthened students' scientific thinking, problem-solving, and analytical skills while making the study of genetics both interactive and exciting.



FEEDING SPIDRO: SIMPLIFYING ALGEBRAIC EXPRESSIONS

In this engaging math activity, students met Spidro, a quirky creature with a unique appetite for algebraic expressions! As Spidro's caretakers, students had the task of "feeding" him expressions in their simplest form.

Through this fun challenge, students learned to identify the key parts of algebraic expressions—terms, coefficients, and variables—while applying the commutative and distributive properties correctly. Step by step, they practiced simplifying expressions and used the GIZMO simulation to visually test and verify their answers.

By comparing expressions, students also explained why one form was simpler than another, turning an abstract math concept into an interactive and enjoyable learning experience.

MICROBIOLOGIST MISSION: SAVING THE DOGWOOD RIVER

In this engaging STREAM challenge, students stepped into the role of microbiologists and environmental engineers to investigate why people were falling sick after swimming in the Dogwood River. Using a simulation tool, they monitored bacteria levels and explored how runoff carries pollutants from human activities into the river.

By analyzing the sources of contamination, students built models to understand how pollution spreads through the watershed. They then applied their learning to design sustainable solutions aimed at reducing river pollution and protecting the ecosystem.

This activity encouraged students to think critically about real-world environmental issues while developing problem-solving skills and a deeper sense of responsibility toward nature.

ROBO-BADMINTON: PRECISION, FORCE & CONTROL WITH EV3

Students created a mini badminton court using simple classroom materials and progressed through multiple challenge levels—from hitting the shuttle forward to aiming at target zones and striking from greater distances. The ultimate “Rally Challenge” saw teams competing against each other, attempting to pass the shuttle back and forth using their bots.

Through continuous testing and refinement, students modified arm length, motor speed, swing angle, and base stability to improve performance. This hands-on activity strengthened their understanding of force, motion, and precision while enhancing problem-solving, teamwork, and engineering design skills.

FLL UNEARTHED CHALLENGE

Students enthusiastically participated in the FIRST LEGO League Unearthed Challenge, where they designed, built, and programmed robots to solve missions placed on the competition mat. Through this hands-on experience, students worked on completing their first Unearthed missions and learned how their robots could interact with elements representing the underground world.

The challenge required teams to carefully plan their robot's movements and strategies to score points. Reaching the mission model from the start area earned 10 points, while successfully completing the mission model awarded 50 points. This activity encouraged problem-solving, teamwork, and persistence as students refined their designs and programs to improve performance.

The experience was both exciting and educational, helping students develop confidence in robotics while exploring innovation and strategic thinking.

FABLE AI GAME

Students participated in an exciting Fable Robotics Soccer Challenge where they designed and programmed a robot to play a soccer-style game. Students coded their robots to move toward the ball, control direction and speed, and attempt to score goals within the playing field.

Through testing and improving their programs, they developed coding, problem-solving, teamwork, and strategic thinking skills. Resources used included Fable robotics kits, programming software, and soccer challenge mats.

CARGO CONNECT ROBOTICS CHALLENGE

Students stepped into the role of engineers to solve an exciting cargo transportation challenge. Their mission was to design, build, and program a LEGO SPIKE robot capable of moving cargo from different locations to a central Cargo Connect zone, with each location carrying different point values based on distance and difficulty.

Students applied the Engineering Design Process to plan, prototype, test, and improve their robots. They built mechanisms to lift or drag objects and wrote code to control movement and precision. Through testing and iteration, teams analyzed performance and refined their designs to maximize their score within the time limit.

This project strengthened problem-solving, coding, teamwork, critical thinking, and perseverance skills. Resources used included LEGO SPIKE kits, coding software, challenge mats, and planning sheets.

RED HAIR MYSTERY!

Students explored basic genetic concepts, including genes, alleles, and dominant and recessive traits. Using the Explore Learning Gizmos Open Genetics: Red Hair Mystery Gizmo, students investigated how red hair is inherited. Acting as young scientists, they used digital simulations to test inheritance patterns, analyze data, and draw evidence-based conclusions to solve the mystery.

This inquiry-based task enhanced their analytical thinking, data interpretation, and scientific reasoning skills. Students also applied critical thinking to connect genetic principles to real-world scenarios. Resources used included the Gizmo simulation platform, digital devices, and guided investigation worksheets.

DRAGON CHALLENGE!

Students combined physics and robotics in an exciting engineering challenge: designing and programming a robot that could climb the steepest ramp without slipping or tipping. They investigated how frictional force affects movement on inclined planes and examined the effects of force at different angles.

Students built and tested their robots, measured the amount of friction required for successful movement, and adjusted their designs to improve stability and traction. Through experimentation and iteration, they strengthened their understanding of forces, angles, and motion while developing resilience, collaboration, and engineering skills. Resources used included LEGO SPIKE robotics kits, adjustable ramps, measuring tools, and coding software for programming and testing.