Recife School District is inspiring students and enhancing science education with Intel® Education Solutions for primary school students

**Challenge**
- Use mobile technology to improve primary school education and expand opportunity in an urban school district
- Develop affordable ways to help teachers improve science education
- Provide great devices for every age while maintaining a consistent environment and aligning with the State of Pernambuco's educational technology program for high school students

**Solution**
- Recife is deploying 21,000 convertible classmate PCs for grades 6–9 and 5,000 Intel® Education tablets for grades 1–5. The devices offer Intel® Education Theft Deterrent technologies, enabling district IT staff to proactively protect their Intel Education Solution devices.
- Students and teachers use Intel Education resources such as the Intel Education Lab Camera by Intellisense and other tools for scientific inquiry and exploration.
- Teachers are empowered with professional development activities, curriculum resources, and tools to help them incorporate technology into student-centered learning.

**Results**
- Intel-based tablets and classmate PCs offer practical, affordable tools for 21st-century learning and affordable science experiments. Students are more engaged in their learning, and are developing 21st-century skills that enhance personal growth and economic success.
- Through professional development, teachers are gaining the skills to guide students through personalized learning plans that increase success. Teachers are increasing their expertise as science teachers.
- With Intel Education Theft Deterrent in place, schools can allow students to take their devices with them after school. Students will have more opportunities to access educational resources. Families will benefit from digital inclusion. The district will increase the impact of its investments in educational technology.
- Close alignment with the high schools' technology environment means students are prepared for a smooth transition.

City of Recife, Pernambuco, Brazil

**Recife School District:**
- Vibrant capital city of the state of Pernambuco, Brazil
- 200 schools with more than 70,000 students in elementary school (grades 1–9)
- 21,000 convertible classmate PCs for grades 6–9
- 5,000 Intel® Education tablets for grades 1–5
- Focus on science learning with Intel Education resources
- Professional development and comprehensive planning to build success
From Computer Labs to Mobile Devices

Recife is the capital of Pernambuco, a central state in the fast-rising Northeast region of Brazil. With a population of more than 1.6 million, Recife is home to Pernambuco’s largest university and Brazil’s second-largest medical center. Recife also has a growing tourist industry and a thriving high-tech sector.

More than a decade ago, the Recife School District established a computer lab in each of the city’s approximately 200 primary schools. Four years ago, Recife schools equipped each teacher with a laptop and wireless Internet access. More recently, Pernambuco’s Connected Student Project has deployed 370,000 Intel convertible classmate PCs to students in grades 10–12 in a comprehensive initiative to advance social and economic progress.

With mobile devices becoming more durable and powerful, the Recife district was eager to give students the benefits of a 1:1 mobile environment. School leaders wanted to shift to a student-centered learning model that would help each child develop 21st-century skills such as critical thinking, communication, creativity, and collaboration.

Education leaders also wanted to increase students’ interest in science, technology, engineering, and mathematics—the STEM subjects. The program has high-level support from the city’s leaders. “With the supply of classmate PCs for each student, education in Recife will improve. We started reach our goal of providing a better future for the children of our city,” says Mr. Geraldo Julio, Mayor of Recife.

Making Science Easy and Affordable with Intel Education Solutions

After a systematic study of the available technologies, Recife’s leaders chose Intel Education solution devices. The district is providing 5,000 Intel Education tablets for grades 1–5, and 21,000 Intel convertible classmate PCs for grades 6–9. Ninth grade students take their classmate PCs with them when they move to high school as tenth graders. Since Pernambuco’s high schools don’t deploy the classmate PCs until Grade 10, this bridges a gap that would otherwise result.

The Recife School District began its educational technology initiative by establishing teaching and learning objectives and preparing the environment. “It is very important to start from the teaching objectives and the school environment,” says Professor Francisco Luiz dos Santos, Executive Secretary for Technology for Education, Recife. “Then, see what the market has to meet the project goals. If you do the reverse, there is a high risk of unsatisfactory integration with other projects or with local realities.”

Intel Education devices are sturdy platforms designed for student use. They offer tools and applications that support teaching and learning, with a focus on scientific exploration and discovery. Students can use their mobile devices’ built-in cameras and sensors to gather scientific data in the classroom, from the school grounds, or on field trips. They can analyze their data, display it in graphs or charts, and incorporate it into reports to share with teachers and peers, and publish to external

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A Model for Success: Education Transformation
Intel relies on a systemic approach to education transformation that is based on educational research and supports best practices for achieving student success.
audiences. They can demonstrate their knowledge not only through traditional tests, but by creating multimedia presentations.

“Our economic and social progress in the future depends in part on helping all students achieve their full potential, particularly in the STEM fields,” says Mr. Jorge Vieira, Secretary of Education, Recife. “To do this, we must inspire students while they are young. We must excite their interest and encourage them to see themselves as young scientists.”

Intel Education devices and resources provide affordable ways to make science activities meaningful for students and enjoyable for students and teachers. “Students can use the tablet as an observation instrument,” says Professor dos Santos. “They can conduct scientific measurements and tests, and also use them as tools to access the largest science laboratories in today’s world: the various resources available on the Internet. We are also planning to have students use sensors to measure temperature, humidity, pH, gas levels, and so forth.”

Building Success with Intel Education and a Holistic Approach

Recognizing the central importance of teachers in technology adoption, the Recife School District provides extensive professional development activities and ongoing support. Teachers work with the technology team to ensure that the chosen devices will be practical and usable for teaching, learning, and assessment.

The Intel Education team has collaborated with the Recife school system to share research-based best practices and increase success. Teams from the Intel International Science and Engineering Fair (Intel ISEF) Program have discussed ways to use science fairs to help students conduct original research and create innovative solutions to real-world problems. Intel recently donated

Intel Education Theft Deterrent technology in the mobile devices will help the district implement policies that increase digital inclusion and student learning. Using the technology, school IT leaders can mitigate losses and protect the district’s investments while giving students more time to access educational resources. “In this way, we are expanding technological inclusion for most of our students as well as their families,” Mr. Vieira says. “This increases the value of the technologies.”

Practical Mobile Technologies

The Intel convertible classmate PCs and Intel Education tablets offer practical capabilities that are increasing the educational value for the Recife School System. “The fact that we could provide a consistent environment with both tablets and classmate PCs was very important,” Professor dos Santos says. “We’ve found tablets are more suitable for the very young students, but we believe the convertible classmate PCs will better prepare the students who are getting ready for high school.”

Students in grades 6–9 use the same Windows* operating system and applications on their classmate PCs as the high schools do, allowing students to avoid learning a new environment when they move to high school. By working closely with technology leaders at the Pernambuco high school system, the schools were able to negotiate favorable terms, extending their budget resources.

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leading-edge equipment so advanced
students can gain hands-on experience
developing solutions for the coming world
of sensor-based connected devices known
as the Internet of Things.
“The support and inspiration of the Intel
Education team has been outstanding,”
says Mr. Rogéno Morais, Executive Secretary
of Pedagogical Management, Recife. “The
products they design for schools are based
on practical research into how children
learn and how students use their devices.
Their discussions with us show that they
understand all the aspects that must be
in place so that mobile devices can achieve
their full potential. They are committed
to our success.”