



# Intel® Learning Series Solutions Guide

Portfolio of Innovative eLearning Solutions

Intel® Learning Series

Advancing Education Worldwide

» BEGIN TO DISCOVER

## Intel® Learning Series Preparing Students for 21st Century Success



Technology is a vital tool for preparing students to thrive in a knowledge-driven economy. Backed by inspired teachers and effective training, investments in educational technologies can empower students to develop skills such as critical thinking, technology literacy, and collaboration that are essential for success in the 21st century. Around the world, education leaders are envisioning new ways of using technology to improve teaching and learning—but using technology requires much more than simply putting computers in the classroom. Ministries of education and school systems need comprehensive, cost-effective strategies that help them manage the transition to 21st century education. Schools need robust products and content which are locally appropriate, easily deployed, and simple to maintain—not simply technologies, but solutions.

Intel® Learning Series solutions provide a collaborative approach where local stakeholders and a worldwide network of education experts bring together technology infrastructure, hardware, software, content, training, and support—all developed specifically for education and designed to work together. Intel Learning Series solutions are optimized to take advantage of Intel-powered classmate PCs, student-friendly netbooks created for education around the world. The Intel Learning Series provides these solutions— and members of the Intel® Learning Series Alliance bring them to life.

## Intel® Learning Series Alliance Transformation in Action

Intel Learning Series solutions are brought to life by the Intel Learning Series Alliance—a network of more than 350 education and technology companies in over 65 countries. Working together, members of the Alliance deliver comprehensive, cost-effective solutions designed for a range of subject areas and learning objectives. Members of the Intel Learning Series Alliance can help education leaders plan and deploy sustainable, locally relevant solutions based on industry-leading technologies.

This Intel Learning Series Solutions Guide provides examples from a range of subject areas and schools worldwide. It showcases education leaders who are envisioning new ways of using technology to improve teaching and learning. They're using solutions from the Intel Learning Series and working with members of the Intel Learning Series Alliance—to address specific challenges, turn their visions of 21st century education into reality, and prepare their students for a fast-changing global economy.

- Over 2 million Intel-powered classmate PCs
- Intel Learning Series benefits education and economies
- Complete solution that includes hardware, software, infrastructure, services, and training
- Research-based and localized for local needs

**65+ Local OEMs**  
**300+ Companies**  
**60+ Countries**  
**20+ Languages**





# Intel® Learning Series

## From Visions to Results

These real-world solution examples are practical, touching, and inspiring. They describe initiatives designed to raise achievement, inspire an interest in science and technology, expand children's creativity, and more. They draw together some of the most respected names in classroom technology—members of the Intel Learning Series Alliance.

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#### Middle East

##### » Bringing Educational Texts into the Digital Age

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Oman's Ministry of Education and Diwan Software Ltd are piloting a comprehensive digital text solution that includes Intel-powered classmate PCs, SMART\* interactive white boards, and Diwan's Oannis\* Reader for Education.

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*Talent School Surselva, Switzerland*

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A Guadalajara-based primary school is using award-winning BrainPOP\* educational software with Intel-powered classmate PCs to increase achievement and creativity with children ages 6-8.

##### » Experiencing the Excitement of Science

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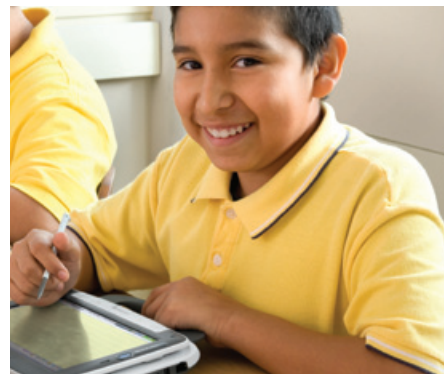
High in the Andes Mountains, the Arequipa Department of Education is collaborating with Bionet SA and PASCO Scientific to provide junior high school students with advanced tools for scientific research and experiments.

#### North America

##### » Art and Robotics for Third-Graders

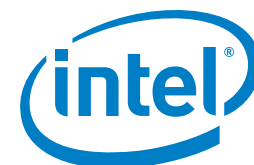
*Buckman Arts Focus Elementary School, Portland, Oregon*

A third-grade teacher in Portland, Oregon is using LEGO WeDo\* kits and ArtRage\* software on Intel-powered classmate PCs to teach his students about natural ecosystems and creativity.









# Teaching Technology Skills and English to Young Children



Computer Technology Link



## About the Case des Tout-Petits

Early childhood development has been a national priority for the Republic of Senegal since His Excellency Abdoulaye Wade became president of the West African nation in 2000. Under President Wade's leadership, Senegal's National Agency for Early Childhood Development (NAECD) has established community-based centers known as Case des Tout-Petits (CTPs) or Toddler Houses. These innovative preschools, supported by the highest level of Senegalese authorities, provide integrated services to children from birth through age six, particularly those who are underprivileged. Services include educational activities designed to develop intellectual, psycho-motor, and socio-affective abilities, as well as health and nutrition services. The CTPs also offer child development training for parents.

## Education Challenge

Education in each CTP focuses on language development, hygiene, socialization, and educational games. Since young children absorb language training easily, President Wade recently asked that the centers also offer training in English as a second language. In addition, parents, educators, and policy makers have made requests for children to receive computer instruction.

At the request of President Wade, the CTP in the Ouest Foire district of Dakar has undertaken a pilot program to address both of these goals at once. The CTP is integrating information and communication technology (ICT) with the instructional framework for four-year-old and five-year-old children, and using technology to provide the children with basic English-language instruction.



"The integral development of the young child is a major goal that all our daily actions at the national Agency of the Case des Tout Petits will contribute to reach in compliance with the expectations of the President of the Republic."

– Mrs. Aminata Samaké Sow,  
Director General of the Agency of the  
Case des Tout Petits.

"Intel-powered classmate PCs fully support Waterford Institute's rich, interactive, multimedia learning activities. They provide an ideal combination of form factor and full computer functionality to deliver a quality educational solution for our programs for young children in Africa. We are also very happy with the performance and reliability of the systems we have installed in Africa."

– Charles Callis  
Vice President for Business Development  
Waterford Institute

### **Intel® Learning Series Solution: English Language and Technology Skills**

CTP Ouest Foire has undertaken the pilot program in partnership with the Waterford Institute, a member of the Intel Learning Series Alliance, using Waterford Institute's educational and assessment software. The Waterford Institute supplied:

- State-of-the-art ICT equipment, including Intel-powered classmate PCs manufactured by CTL Corporation, along with servers, networking, and audiovisual equipment
- Waterford Early Learning\* software, which consists of Waterford Early Reading\* Program, Waterford Early Math and Science\*, and the Waterford Assessments of Core Skills\* (WACS)

With the pilot program, children at the CTP Ouest Foire use Waterford Early Learning for 25 minutes each day on their Intel-powered classmate PCs. An educational software program for children aged four to nine, Waterford Early Learning uses engaging activities, stories, and songs to teach children to read and speak English. Children start with the ABCs and move on to more complex skills in phonics, phonological awareness, language concepts, comprehension, and vocabulary.

The Waterford Institute program creates a personalized learning path for each child: it adapts to the child's skill level, and provides the instruction, practice, and review necessary to master each skill. As children learn language skills, they also build a foundation for a lifetime of learning, using academic building blocks as well as computer education. They have fun and discover the joy of learning.

Waterford Institute selected the Intel-powered classmate PC after thorough research and testing for use in its educational programs. "Intel-powered classmate PCs fully support Waterford Institute's

rich, interactive, multimedia learning activities," said Charles Callis, vice president for business development at Waterford Institute. "They provide an ideal combination of form factor and full computer functionality to deliver a quality educational solution for our programs for young children in Africa. We are also very happy with the performance and reliability of the systems we have installed in Africa."

### **Solution Support**

Waterford Institute has worked closely with NAECD and CTP Ouest Foire to ensure success. Waterford Institute personnel installed six Intel-powered classmate PCs in a computer lab at the CTP, assisted in setting up a wireless network, and configured the work environment to get the program and software set up and working. Waterford Institute also provided an on-location program monitor and three to four full days of training for the coordinator, CTP teachers, and staff. The training covered how to use the computers and the Waterford Institute programs to instruct, monitor, and evaluate the students. Waterford Institute also provided initial instruction for the children.

Ongoing support, encouragement, training, and assessment are important for the success of technology initiatives. Waterford Institute has provided ongoing technical support through a team at its home office in Salt Lake City, Utah, and through a project manager in Senegal who works for the NAECD. Waterford Institute also supports the CTP's monitoring and evaluation activities. Waterford Institute monitors a database that helps keep track of minimum daily usage and learning gains, contacts clients to inform them of discrepancies in meeting established usage requirements, and administers assessments. The support team also provides ongoing motivational tips and ideas to help teachers make the most

of the software. Waterford Institute assisted in administering the first rounds of assessments to control groups and treatment groups to establish a baseline and help get the program going.

### Impact

Formal assessments are planned, but already, early results have been exciting. Although most children at the CTP had never used a computer before, they quickly picked up the necessary computer skills. They rapidly caught on to English and progressed through learning phonics in just five months.

Part of the strength of the Waterford Institute program is its ability to enable children to learn on their own. As the children have progressed in each skill, they have been able to do even more on their own: count, sing, and follow directions in English. Just one month after they began using the program, the children started spontaneously singing the ABCs on their own.

Personnel at the school observed that the children began using the program automatically, following the instructions on their own. After six months, the children were learning easily and answering questions correctly without assistance.

Parents have been surprised at how quickly the children are learning English just through the use of technology. In fact, some parents have asked if it is possible to have the program at home so the children can continue learning outside the CTP.

### What's Next?

At the direction of President Wade, the National Agency for Early Childhood Development has collaborated with Waterford Institute, an Intel Learning Series partner, to give young children the benefits of ICT and enable them to learn a second language at a time in life where such learning comes naturally if lessons are presented according to best instructional practices. Using Intel-powered classmate PCs and Waterford Early Learning solutions, and backed by expert support from Waterford Institute, the pilot program has been so successful that the NAECD is expanding the program nationally to the more than 400 CTP preschools throughout the nation. Waterford Institute is working with the NAECD to deploy the program in those locations, and is training staff to provide ongoing support and evaluation in Senegal.

Among the key learnings that NAECD and the Waterford Institute will apply going forward:

- No learning occurs if the children are not using the software, so it is important to ensure that the children are using the educational software daily. Initial training is vital in this regard, and an on-site program manager can provide ongoing accountability and support.
- Plan for every detail in the initial setup of the program, such as having the necessary electrical supply and Internet connection, and be sure to have on-the-ground support and coordination.

With the success of the CTP pilot, Senegal is further demonstrating its commitment and leadership in expanding opportunities for the nation's children.



## INTEL LEARNING SERIES SOLUTION

### Education challenge

- Provide an outstanding environment to support early childhood development, including exposure to ICT and English-language learning

### Solution elements

- Intel-powered classmate PCs
- Waterford Early Reading\* Program
- Waterford Early Math and Science\*
- Waterford Assessment of Core Skills\* (WACS)

### Solution providers

- Intel Corporation
- CTL Corporation
- Waterford Research Institute

For more information

[www.intellearningseries.com](http://www.intellearningseries.com)

[www.case-toupetit.sn/](http://www.case-toupetit.sn/)

[www.waterfordearlylearning.org/](http://www.waterfordearlylearning.org/)

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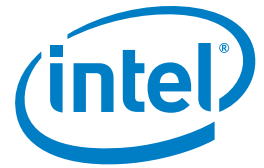
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# Bringing Educational Texts into the Digital Age

## About Education in Oman

Modern public education in the Sultanate of Oman began in 1970 when Qaboos bin Said Al Said became sultan. Today, education in Oman is seen as a vital way to expand the nation's role in the global economy. Oman now has over 1,000 schools, including approximately 130 private schools. An estimated 560,000 students, nearly half female, are enrolled in public schools, with another 25,000 students in private schools.<sup>1</sup>

Oman's Ministry of Education (MOE) is proactive in using information and communication technologies to enhance education. The MOE has established a comprehensive ePortal to improve educational administration and facilitate communication among all participants in the educational system. Teachers from around the Omani capital of Muscat have attended Intel® Teach professional development courses to advance their ability to use technology to help students develop 21st century skills. And the MOE is increasing its use of distance learning, including virtual classrooms and self-directed online courses.



## Educational Challenge

Educational texts are an important tool for teaching and learning. Oman uses centrally established curriculum, and books that are used in the schools embody a wealth of knowledge and experience. Teachers have invested years in developing lessons to support these text books. Yet traditional texts are expensive to update and difficult to integrate with new educational technologies.

As part of its ongoing commitment to deliver an outstanding education, the Oman Ministry of Education decided to investigate the use of digital text books. The Ministry wanted a solution that:

- Is comfortable for teachers to work with
- Provides the benefits of computer-based education
- Is based on the existing curriculum and texts

“Through my work with these electronic books, I believe their implementation shall make a jump in the educational environment the same as the invention of printing.”

– Dina Jaber Tskr al Aweera,  
Teacher,  
Al-Thuraya School

### **Intel® Learning Series Solution: 1:1 eLearning and Digital Textbooks**

The MOE evaluated a comprehensive solution provided by Diwan Software Limited, and is deploying the solution in a 1:1 eLearning environment at Al-Thuraya School with tenth and eleventh grade students and their teachers. Al-Thuraya is a public secondary school (grades 7 to 12) located in the Muscat area.

Diwan Software is a member of the Intel Learning Series Alliance and a pioneer in the Arab publishing industry. In 1986 Diwan introduced the first desktop publishing application in the Arab-language world. The company has continued to innovate and today is an international leader in desktop publishing and digital text books.

As a member of the Intel Learning Series Alliance, Diwan works with other members to provide high-quality, integrated solutions and services. Diwan’s Intel Learning Series solution is a robust one that is being used at schools around the world and contains a variety of capabilities to enhance collaborative teaching and learning.

The Intel Learning Series solution from Diwan replaces the use of paper books in the classroom and gives teachers more tools for teaching their lesson. The Diwan implementation in Oman combines:

- A convertible, Intel-powered classmate PC for every student in the class. Intel-powered convertible classmate PCs are fun, rugged, affordable netbooks designed for interactive, collaborative learning; they convert instantly from clamshell to touch-optimized tablet. The Intel-powered classmate PCs are supplied by the Gulf local OEM, Diwan in Dubai, and installed by its local partner in Oman, Loay International.

- Electronic versions of the Omani text books for mathematics, chemistry, and physics, prepared by Diwan
- A special edition of Diwan’s Oannis\* Reader for Education, a browser for viewing and exploring text books
- SMART Board\* interactive whiteboards from SMART Technologies
- SMART Classroom Suite\* software with additional integration provided by Diwan
- HP laptops which teachers use to work collaboratively with students through the Intel-powered classmate PCs and SMART Boards

Now, students don’t simply read their books—they interact with them. Students can browse, summarize, and search through texts on their Intel-powered classmate PCs, and teachers can do the same functions using their laptops. Students and teachers can highlight and annotate texts using digital pens and erasers. They can use powerful collaborative tools, sharing annotated pages on the Intel-powered classmate PCs or interactive whiteboard.

The solution can give teachers immediate information on the effectiveness of their pedagogy. Teachers can use the SMART Classroom Suite software to create multiple-choice and open-ended questions, which can contain text, drawings, and images. Teachers can send the questions to students individually or to an entire class, and can issue the questions in real time or at a later time. Students’ answers are stored in a database, and teachers can review individual answers as well as data showing the pattern of the class’s responses to each multiple-choice question. These tools assess how well the whole class has understood the lesson and identify which students may be struggling.

## Solution Support

One of the strengths of the solution is that it enables teachers to build on their existing skills while continuing to use familiar books, content, and lesson plans. Diwan has provided training to teachers on how to use the technologies, and the local SMART Technologies representative helps with training and support for the interactive whiteboard.

Diwan has also supported the project by installing the school texts and relevant software on each Intel-powered classmate PC, using the student-friendly Blue Dolphin interface to simplify the desktop. Blue Dolphin is an Adobe Flash-based PC shell that enables Intel-powered classmate PC users to control applications, folders, and other items on the desktop by touch or click.

Intel has been involved in this project since the beginning, and helped supply the Intel-powered convertible classmate PCs for the project. In addition, Intel will commission a study to measure the educational benefits of this project.

*"For my opinion, this interactive e-book is a miracle for the current era. I feel it's perfect to the student. It joined useful needs with fun and ease. Also, instead of taking the normal backpack to school we could take this e-book which is easily held."*

*– Duaa Bint Abdullah al Wahibi,  
Grade 10 student,  
Al-Thuraya School*

## Impact

Teachers of tenth and eleventh grade students at Al-Thuraya School have been trained on the digital texts solution, and have been using it since the beginning of 2010. The solution will be used full-time beginning in September 2010.

Teachers quickly became fluent in working with the software. At a 2010 Gulf Educational Supplies and Solutions (GESS) trade show, the Oman Ministry of Education demonstrated the solution. "The teacher who made the presentation of the solution did a better job than our own employees," said Adil Allawi, Technical Director of Diwan Software. "It is amazing to see how fast the teachers have engaged with the software and how quickly they become proficient."

Students and teachers are highly positive in their assessment of the technology. A grade 10 student, Duaa Bint Abdullah al Wahibi, commented, "For my opinion, this interactive e-book is a miracle for the current era. I feel it's perfect to the student. It joined useful needs with fun and ease. Also, instead of taking the normal backpack to school we could take this e-book which is easily held."

Teacher Dina Jaber Tskr al Aweera added, "Through my work with these electronic books, I believe their implementation shall make a jump in the educational environment the same as the invention of printing."

## INTEL LEARNING SERIES SOLUTION

### Education challenge

- Improve use of educational texts and expand the benefits of information technology for education

### Solution elements

- Intel-powered classmate PCs
- Oannis Reader\*
- SMART Board\* interactive whiteboard
- SMART Classroom Suite\* software
- Blue Dolphin\* interactive interface for Intel-powered classmate PCs

### Solution providers

- Intel Corporation
- Diwan Software Limited
- SMART Technologies



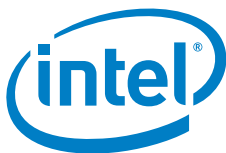
## What's Next?

The Oman Ministry of Education has been working for a number of years to increase the use of technology in the classroom. The Intel Learning Series solution is part of a wider initiative that will see more use of technology, computers, and the Internet for learning across all grades in Oman.

As the electronic book solution is more widely adopted, more of Oman's students will benefit from the ability to browse, search, and annotate their texts. More teachers will be better able to improve teaching and learning by integrating educational texts with other digital resources. Curriculum experts will be better able to modify educational texts and keep them up to date.

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1. Oman Cultural Office in Washington, DC, <http://www.omani.info/education.htm>.

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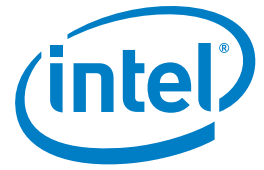
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# Nurturing Talent Through Technology



## About the Talent School

Talent School Surselva is a public, secondary school situated in the community of Ilanz in the mountainous Surselva district of eastern Switzerland. The school was established in 2009 and is designed to help gifted young athletes and musicians reach their full potential. It offers a supportive learning environment with specialized coaching in sports activities and music along with the coursework needed to provide a high-quality education.

The Talent School has won endorsements from Diego Benaglio, the Swiss national football goalkeeper, and David Cologna, Switzerland's world-champion cross-country skier. The school enrolled 16 students in its first year. As its second academic year begins, Talent School is adding a second class of students.

## Education Challenge

Talent School students often travel long distances between home, school, and training locations. It is important for them to continue their education even when they are away from the school for training events, competitions, or performances. With all the demands of their musical or athletic training, they also need to make the most of the time they have available for learning, both in the classroom and outside it.



Students can collaborate on group projects even when members are in different locations. The classroom experience is more engaging and interactive, which helps increase learning and retention.



### Intel® Learning Series Solution: Effective Education in the Classroom and on the Go

Selecting solutions from the Intel Learning Series, the Talent School created a technology-enriched learning environment that improves education in the classroom and when students are on the road.

Each student has an Intel-powered convertible classmate PC that they can use for school work anywhere on campus or away from school. Intel-powered convertible classmate PCs are rugged, affordable netbooks designed for collaborative, interactive learning. They convert instantly from a “clamshell” design to a tablet PC, allowing students to use a touch screen or digital pen to interact with the software. The tablet PC automatically adjusts the screen orientation, so students can hold their tablets any way they want. This adds flexibility and convenience when students are working in remote locations.

In the classroom, students and teachers use a SMART Board® interactive whiteboard system and SMART Classroom Suite® interactive learning software, an integrated solution that enhances teaching and accelerates student learning in computer-enabled classrooms.

As a premier Intel Learning Series Alliance member, SMART’s integrated hardware and software products are optimized to work with Intel-powered classmate PCs. Teachers use notebook PCs and SMART Classroom Suite, which includes four of SMART’s easy-to-use, education-specific software products—SMART Notebook® collaborative learning software, SMART Sync® classroom management software, SMART Notebook SE (Student Edition) collaborative learning software and SMART

Response® CE interactive response software. With the help of this integrated software suite, teachers and students benefit further from their Intel-powered classmate PCs. Teachers can efficiently manage classrooms, easily prepare and deliver lessons and instantly assess student understanding at any time during a class. In addition, students can create and organize multimedia content, take notes, collaborate with each other, and share files.

Teachers also use educational software from P3D, another Intel Learning Series Alliance member, to create virtual reality demonstrations of biological and geographical processes. Based in Sao Paulo, P3D provides highly interactive 3D tools that enable students and teachers to view and manipulate 3D models and virtual worlds on the interactive whiteboard. P3D’s biology software won the Worlddidac Award 2010, given by the World Association of Publishers, Manufacturers, and Distributors of Educational Materials to recognize the best products for education and training at all levels.

To further enhance opportunities while students are away from campus, the Talent School is adding SMART Bridgit® conferencing software. Using SMART Bridgit with their Intel-powered classmate PCs, students can participate in class remotely. For example, a competitive skier who is spending part of the day on the slopes can use a classmate PC in the ski lodge to see what the teacher is putting on the SMART Board interactive whiteboard in class—and participate in the class discussion. Students and teachers can also share what is on their desktop instantly. Talent School will share SMART Bridgit with a convent in Ilanz, whose nuns will use it to communicate with their home office in Brazil.



## Solution Support

The Talent School worked with NOVIA AG, the local Intel Learning Series vendor, to prepare for success. NOVIA is a Swiss company that specializes in selling and supporting products from SMART Technologies and other technology leaders. Working closely with the school, NOVIA:

- Provided IT and network support to ensure that the right infrastructure was in place and that all systems were configured correctly.
- Helped the school select the best software and applications to meet the needs of students and teachers.
- Provided teacher training to overcome any initial anxieties and create deep acceptance of the technologies.

This collaborative relationship and advanced planning helped provide a positive and effective experience for teachers and students.

The first year of the pilot has been such a success that the Talent School is adding additional Intel-powered classmate PCs and SMART Board interactive whiteboards for the new, incoming students.

## Impact

With the Intel Learning Series solutions in place, students are better able to keep up with their school work despite their demanding schedules outside the classroom. Students can collaborate on group projects even when members are in different locations, and they are gaining technology skills that will be valuable to them in future education, internships, and jobs. The classroom experience is more engaging and interactive, which helps students learn and remember the material.

Teachers say the eLearning solution improves their ability to present whole-group lessons as well as individualized instruction that meets each student's needs. The technologies are used in all classes, but particularly in Language, History, and Geography.

The school has become well known throughout the region and has received media coverage of its excellent use of educational technologies and its innovative approaches to education for talented young musicians and athletes. Football player Diego Benaglio summed it up when he spoke at the school's opening ceremony. "Whether in sports or in the arts, at the very beginning of each career, the important task is to promote excellence and at the same time to gain the best academic training. The Talent School Surselva is doing this in an exemplary manner."

## INTEL LEARNING SERIES SOLUTION

### Education challenge

- Enable students to continue their education and participate in class even when they are traveling or attending events

### Solution elements

- Intel-powered classmate PCs
- SMART Board\* interactive whiteboard
- SMART Classroom Suite\* interactive learning software
- Samsung document camera\*
- SMART Bridgit\* conferencing software
- Educational software from P3D and other organizations

### Solution providers

- Intel Corporation
- SMART Technologies
- NOVIA AG
- P3D

## What's Next?

Using software, hardware, and services from the Intel Learning Series, the Talent School deployed an effective eLearning environment that is helping the school foster the next generation of star musicians and athletes. The first year of the pilot has been such a success that the Talent School is adding additional Intel-powered classmate PCs and SMART Boards for incoming students in 2010.

For more information

[www.intellearningseries.com](http://www.intellearningseries.com)

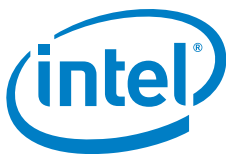
[www.smarttech.com](http://www.smarttech.com)

[www.p3d.com.br](http://www.p3d.com.br)

[www.novia.ch/school](http://www.novia.ch/school)

[www.talentschule-surselva.ch](http://www.talentschule-surselva.ch)

SOLUTION PROVIDED BY:



## Intel® Learning Series

Advancing Education Worldwide

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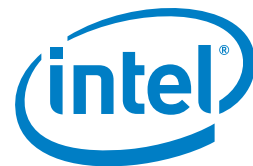
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# A Municipality-Wide Initiative to Train a New Generation of Students



## About the City of Araucária

Araucária is an agricultural community of 117,000<sup>1</sup> people located in the state of Paraná in southern Brazil, approximately 32 km (20 miles) from the state capital of Curitiba. Araucária occupies a strategic position economically because of its well-developed infrastructure and its location in one of the most developed areas of southern Brazil.

Araucária's municipal leaders are forward-thinkers who have undertaken a number of initiatives aimed at improving citizens' quality of life. The city has invested in public sector projects related to education, health, and security, making the city an example for the nation.

## Araucária's Educational Challenge

Technology is an important tool for preparing today's students to be competitive members of the knowledge economy. However, in Araucária, students, teachers, and administrators have had only limited access to technology. In addition, classes have emphasized instilling facts rather than developing 21st century competencies and skills. Many teachers have not had opportunities to develop the skills and knowledge needed to effectively incorporate technology into the classroom.

In 2009, Araucária's mayor established a vision of investing in education to create a new generation of students who will be better prepared for the 21st century. The result is the Araucária Digital Project, which was established to expand opportunities for the municipality's youth. The project is founded on the constructs of creativity, innovation, and technology, and has three primary goals:

- **Develop a new generation of students.** Araucária Digital aims to build a more sustainable society by developing competencies and skills such as the ability to think critically; make judgments; solve complex, multidisciplinary and open-ended problems; and develop creative and entrepreneurial thinking. Other important skills for 21st century students include learning how to communicate and collaborate with colleagues, using information and communication technology, making innovative use of knowledge and information, creating new services and products, developing civic responsibilities, and learning to make wise choices.
- **Increase the use of technology in public schools.** The project has the vision of enabling every student and educator in the public school network to use a laptop computer in order to expand their access to information, develop production skills, acquire new knowledge, expand their intelligence, and participate in the collective construction of knowledge.

metasys<sup>®</sup>



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- **Improve the performance of the schools.**

The school environment is where students develop knowledge, skills, and competencies for life, so the project recognizes the necessity of improving the performance of educational institutions in order to better prepare students for the future.

### **Intel® Learning Series Solution: Education for a New Generation of Students**

To achieve its vision, Araucária's Secretary of Education is implementing a comprehensive solution that supports eLearning through the use of one laptop computer per student. In an effective 1:1 eLearning environment, teachers can use technology throughout the day and across the curriculum to deliver a 21st century education. By providing 1:1 access to computers through public schools, Araucária also helps remove regional discrepancies between technology-empowered and technology-excluded citizens.

"The project proposes a new way to apply technology in public schools through the educational use of individual laptops by exploiting the mobility and enabling the digital immersion of students and teachers. Our goal is to involve all segments of the school community: teachers, administrators, students, and parents."

— Rosilene Caetano Lake  
Coordinator of Educational Technology

The leaders of Araucária Digital decided to deploy Intel-powered classmate PCs—rugged netbooks designed especially for the needs of students. The Intel-powered classmate PCs provide engaging and interactive ways for students to absorb information and create content, and also provide teachers with tools to individualize instruction and promote learning based on problem-solving.

Members of the Intel Learning Series Alliance came together to support the Secretary of Education in achieving its goals. Specifically, Araucária Digital is a collaboration among:

- Intel Corporation, the developer of Intel-powered classmate PCs.
- International Syst, a Brazilian educational technology leader that develops solutions based on open platforms and aimed at digital inclusion of people and organizations.
- Positivo Informática, a leader in the Brazilian computer market and the local manufacturer of Intel-powered classmate PCs.

The Araucária Digital project started in October, 2009, and the first phase began in the first semester of 2010. Important accomplishments include:

- Connecting 15 schools within the municipality to the Internet and creating a school network linked to county headquarters.
- Reaching 7,000 students in the municipality with 3,500 clamshell Intel-powered classmate PCs from Positivo Informática, plus Positivo Mobo\* netbooks for the municipality's 560 teachers.
- Developing a school management system with simplified access to secure information.
- Developing a set of learning applications to empower students and teachers through the Web.

- Empowerment of parents by informing them about the new technology their children will be using, including the security system on the laptops and the role of the family in the context of modern society.

Araucária chose International Syst's Metasys Education Solution\*, a leading open-source software solution for Intel-powered classmate PCs, to provide a unified educational suite for students, teachers, and administrators. Araucária's choice of the Metasys platform and the Linux\* operating system running on Intel platforms was critical to achieve the required service costs and management capabilities for seamless deployment of the project.

The Metasys Education Solution is the product of over seven years of research and development, and is used by more than 2.5 million students at public schools around the world. As a comprehensive suite, Metasys includes a robust, Linux-based operating system, educational applications, class collaboration software, access management control, and monitoring system. The open source software environment offers flexibility for users and enhances the technical development capabilities of administrators, teachers, and students.

### **Solution Support**

Companies in the Intel Learning Series Alliance are working together to ensure the success of the Araucária Digital Project. Positivo Informática is responsible for providing the 3,500 Intel-powered classmate PCs and 560 Positivo Mobo notebook PCs for teachers, as well as 16 school servers and an additional server to host the monitoring system. Positivo Informática is also delivering 7,000 flash memories, which students will use to store their work.

To support the municipality in its use of the Metasys integration solution, International Syst is collaborating with the Municipal Secretary of Education to provide a wide range of services:

- **Project implementation.** The project implementation services are aimed at defining the strategy, project structure, action plan, definition of roles and responsibilities, timetables of activities, allocation of resources, and risk management.
- **Training.** International Syst has trained more than 220 teachers, school system administrators, and other professionals. Training courses are taught face to face, and are aimed at qualifying teachers to fully utilize the systems, software, and other resources to enhance education. The company also trains local administrators to support and maintain the solution environment.

- **Ongoing support.** International Syst conducts ongoing upgrades, remotely monitors the school network, and provides remote technical support and Help Desk services to local school technicians.

### Impact

With the Metasys Education Solution and Intel-powered classmate PCs, Araucária's educational system is accelerating and simplifying the introduction of information technology for one complete generation of students. This approach is enabling Araucária to raise the level of the educational system and expand opportunities for students to thrive in the global 21st century economy. "This project is one of the most significant investments made in education in Araucária," said Maria José Dietrich, Secretary of Education of Araucária. "The result is that students are more interested in class, and in the future will be better prepared for life."

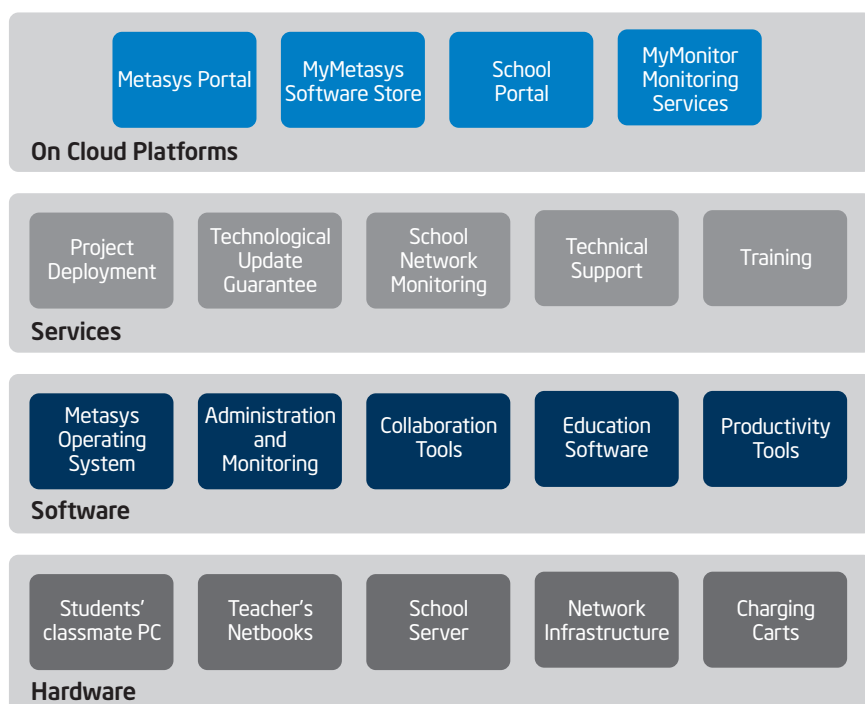


Figure 1. Metasys Architecture

## INTEL LEARNING SERIES SOLUTION

### Education challenge

- Promote economic growth through an educational program focused on creativity, innovation, and technology

### Solution elements

- Intel-powered classmate PCs
- Metasys Education Solution\*

### Solution providers

- Intel Corporation
- International Syst
- Positivo Informática



"This project is one of the most significant investments made in education in Araucária. The result is that students are more interested in class, and in the future will be better prepared for life."

— Maria José Dietrich  
Secretary of Education  
Municipality of Araucária

**Table 1. Metasys Software Elements**

Operating Systems	Education Applications
<b>Metasys Classmate</b> <ul style="list-style-type: none"> <li>Linux*-based OS developed for Intel-powered classmate PCs</li> <li>Comes with Internet, office, multimedia, and educational applications</li> <li>Enables ad hoc mesh networking among Intel-powered classmate PCs</li> </ul>	<b>v-Class class collaboration software</b> <ul style="list-style-type: none"> <li>Integrates teachers' and students' computers</li> <li>Allows teachers to monitor and control students' PCs, run shared applications, conduct exams, and more</li> </ul>
<b>Metasys Desktop</b> <ul style="list-style-type: none"> <li>Linux-based OS and integrated productivity applications for teachers</li> </ul>	<b>PolicyControl</b> <ul style="list-style-type: none"> <li>Allows administrators, teachers, and parents to establish policies that limit access to Internet sites or applications and maintain a history of actions performed on Intel-powered classmate PCs</li> </ul>
<b>Metasys School Server</b> <ul style="list-style-type: none"> <li>Linux-based OS and services for managing, administering, and monitoring a school cloud environment</li> </ul>	<b>EduSyst Desktop</b> <ul style="list-style-type: none"> <li>Educational applications for developing teaching activities at the primary and secondary levels in a wide range of subjects</li> <li>Includes links to online libraries and other educational resources</li> </ul>

## What's Next?

The initial stages of the Araucária Digital project, funded in full by the Municipality of Araucaria, have empowered 7,000 students with 3,500 Intel-powered classmate PCs and 560 teachers with Positivo Mobo laptops. A second phase of the project is predicted to begin in the first quarter of 2011, and will include sponsorship by the Brazilian National Development Bank (BNDES). This phase proposes to acquire more 7,500 Intel-powered classmate PCs and extend the Araucária Digital to 14,000 students, bringing the total to 22,000 students across the municipality.

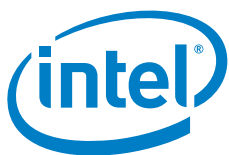
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[www.intellearningseries.com](http://www.intellearningseries.com)

[www.metasys.com.br](http://www.metasys.com.br)

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1. Brazilian Institute of Geography and Statistics, 2009.

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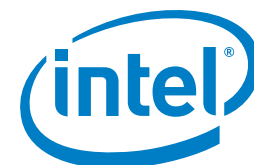
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# Using Technology to Enhance Leadership and Achievement



## About Howard Gardner School

Howard Gardner School in bustling Guadalajara has been established to develop creative thinkers and leaders for Mexico and the world. Students receive a bilingual education designed to help them fully develop their cognitive abilities, social intelligence, and creativity. The school has 74 students in grades 1-3, along with 10 teachers, so students enjoy plenty of individual attention.

## Education Challenge

Howard Gardner School recognizes technology as an important tool to prepare students for 21st century leadership. Teachers can use technology to increase students' motivation and help them develop higher-level skills such as critical thinking and problem solving. Using personal computers and the Internet, students can access educational resources, share and publish their own work, and begin to understand their role in the global community. Students can also develop technology skills that they will use in their future jobs.

Howard Gardner School wanted to explore ways in which the use of technological resources could improve teaching and make learning more dynamic, current, and meaningful. In February 2009, the school began working with Intel on a pilot program to evaluate the impact of adding technology resources into their classrooms.



## Intel® Learning Series Solution: Tools to Increase Achievement

Howard Gardner School established a 1:1 eLearning environment in which 47 students in three classrooms began using Intel-powered classmate PCs and solutions from the Intel Learning Series. Intel-powered classmate PCs are student-friendly netbooks designed with specialized features and software to enhance learning and help teachers be more effective. The school used a mix of traditional "clamshell" classmate PCs and newer convertible models which convert instantly from clamshell to touch-optimized tablet mode, to enhance interactive, collaborative learning inside and outside the classroom. Teachers used Lenovo ThinkPad® T5500 notebook PCs powered by the Intel® Core™ 2 Duo processor.

Students used the Intel-powered classmate PCs to conduct research and collaborate on student-centered, project-based learning assignments. They also used powerful educational software from vendors such as BrainPOP, a member of the Intel Learning Series Alliance. BrainPOP offers award-winning animated content and other curriculum resources for the teaching of science, math, technology, social studies, health, English, arts, and music.

"Thanks to the classmate PCs, children not only like mathematics , they now love it. It has greatly improved their skills in addition, subtraction, and multiplication, and they are doing much better in examinations."

*– Sandra Reyes,  
Year One Teacher,  
Howard Gardner School*

Teachers can use this lively and informative content to introduce new topics, explain difficult concepts, and review before a test. The content is aligned to curriculum plans and programs, and includes a search tool for finding content by subject and grade level. BrainPOP lessons aim to increase knowledge retention and promote 21st century skills such as working collaboratively, and evaluating, systematizing, and communicating knowledge.

BrainPOP is an award-winning solution that has been shown to improve achievement. A study of 1,100 students in 46 classrooms conducted by SEG Research reported that elementary and middle school students using BrainPOP experienced substantial increases in Language, Reading Comprehension, and Science

scores compared to students who did not use BrainPOP. The authors said that students who used BrainPOP experienced 16 to 20 weeks of instruction incorporating BrainPOP, but achieved increases comparable to between one and two grade levels! BrainPOP has won the 2010 Teacher's Choice Award from Learning Magazine, a Distinguished Achievement Award from the Association of Educational Publishers in 2010, and numerous other awards.

The lessons develop competencies such as:

- Efficient use of technology
- Recognition of cultural diversity
- Moral values and a culture of lawfulness
- Increased knowledge of health and the environment



## Solution Support

To facilitate a successful pilot, Intel offered an introductory course that covered the principles of 1:1 eLearning, characteristics of Intel-powered classmate PCs, and an overview of Intel Learning Series solutions and their potential applications in the classroom. BrainPOP Latinoamérica provided licenses for the Spanish-language edition of BrainPOP Junior.\*

## Impact

Teachers at Howard Gardner School say the technologies are enabling a broad range of benefits. For example, students are more motivated. "I'm finally able to unite the group more, and create a competitive environment," said Yolanda Hernandez, Year Three teacher. "This is very motivating for children."

Teachers also say that students are more engaged with their lessons, and learning more as a result. "Thanks to the classmate PCs, children not only like mathematics, they now love it," said Sandra Reyes, Year One Teacher. "It has greatly improved their skills in addition, subtraction, and multiplication, and they are doing much better in examinations."

Parents, too, have observed positive changes. Ximena Moreno said her son "has improved his autonomy and confidence regarding the use of technology. He became familiar with it very quickly."

A survey of Howard Gardner teachers found that they are enthusiastic about BrainPOP and the Intel-powered classmate PCs:

- 100 percent of the teachers at the school would recommend the solution to their colleagues
- 100 percent stated that the content is excellent
- 80 percent said they liked the questionnaires at the end of each topic and found them very useful
- 60 percent mentioned that BrainPOP was among the children's favorite programs

"I'm finally able to unite the group more, and create a competitive environment. This is very motivating for children."

– Yolanda Hernandez,  
Year Three Teacher,  
Howard Gardner School

## INTEL LEARNING SERIES SOLUTION

### Education challenge

- Explore the use of technology to improve teaching and make learning more dynamic, current, and meaningful for children in the early primary grades

### Solution elements

- Intel-powered classmate PCs
- BrainPOP Junior\*

### Solution providers

- Intel Corporation
- BrainPOP Latinoamérica

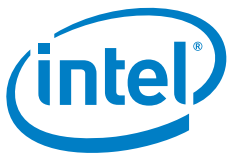


## What's Next?

Howard Gardner School is experiencing the benefits of integrating 1:1 eLearning with Intel-powered classmate PCs into the early primary grades classroom. The school is using the classmate PCs with multimedia content such as BrainPOP, to promote academic achievement and the development of 21st century leadership skills. Teachers and children are excited about using technology, and are looking forward to continuing the pilot project.

For more information  
[www.intellearningseries.com](http://www.intellearningseries.com)  
[www.brainpop.com](http://www.brainpop.com)

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1. SEG Research, Improving Science Study and English Language Skills: A Study of the Effectiveness of BrainPOP, 2009. [http://www.brainpop.com/new\\_common\\_images/files/78/78731\\_BrainPOP%202008-2009%20Effectiveness%20Report%20082109X.pdf](http://www.brainpop.com/new_common_images/files/78/78731_BrainPOP%202008-2009%20Effectiveness%20Report%20082109X.pdf)

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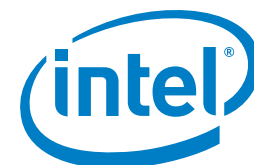
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# Experiencing the Excitement of Science



## About Arequipa

Peru's Arequipa Region contains extremes of geography—from coastal ports along the country's southwest coast, to Andean mountain peaks. The region contains Peru's second-largest city, also named Arequipa, with its rich history, outstanding architecture, and diverse economy; but for the region as a whole, an estimated 44 percent of the population lives in poverty. Public education is free and compulsory up to age 15, and Peru has established a national curriculum.

## Education Challenge

The Government of Arequipa Region is committed to improving opportunities for the region's children. Dr. Juan Manuel Guillén Benavides, President of the Arequipa Region, has stated: "My dream is that public education provides an instrument of equal opportunity for all the students of Arequipa ... Every student must have access to high quality education. In order to accomplish this goal, we have invested in infrastructure, technological equipment, and teacher education."

Arequipa's leaders wanted to create classroom science labs, and were looking for a solution that fulfilled the requirements of Peru's national curriculum standards. They wanted students to have in-class access to tools and resources that would allow them to perform experiments, conduct online science research, and explore and understand the environment where they live. The Arequipa program leaders specifically wanted a portable solution, so students could do experiments in the classroom or outside in the field.



"I enjoyed learning with the classmate PCs and sensors. It was great to be able to measure pressure, conductivity, pH, and many other experiments."

– Henry Valencia Rivera, Student

### Intel® Learning Series Solution: Hands-on Science for the 21st Century

Working with Intel, PASCO, and Bionet, Arequipa implemented a program that uses mobile technologies to enhance science education for junior high school children. Arequipa chose solutions from the Intel Learning Series, and started the program two years ago at two schools. The results were impressive, and the program has since expanded to 10 other schools in the region.

Arequipa's solution combines Intel-powered classmate PCs with wireless networking and digital equipment and software from PASCO Scientific. Intel-powered classmate PCs are rugged, child-friendly netbooks designed specifically for use in education. PASCO Scientific is a teacher-centered, technology-based, solutions-oriented science education company that has been in business for more than 45 years.

Each school has been provided with a classroom set of eight Intel-powered classmate PCs, allowing students to work in small groups. Students use PASCO's PASPORT\* Probeware electronic sensors, sensor interfaces, and software with their classmate PCs to collect, record, analyze, visualize, report, and share their data. PASCO's Probeware line of sensors and interfaces enables students to measure more than 70 types of physical phenomena relating to biology, chemistry, earth science, environmental science, physics, engineering, and other scientific disciplines.

Students also use their Intel-powered classmate PCs with the wireless network to conduct research online and use digital microscopes and other instruments that connect via the PC's USB port. For instance, in biology labs, students look online for pictures of leaves and later use a USB-connected digital microscope to zoom in on an image of a real leaf on the Intel-powered classmate PC. Students use either DataStudio\* or SPARKvue\* from PASCO to organize their data and visually explore what they have measured.

### Solution Support

Bionet SA, PASCO Scientific's selling partner in Peru, has been instrumental in helping the Department of Education of Arequipa create a more robust national curriculum. Bionet's curriculum experts, trainers, and technical support staff have helped to support and guide the project, ensuring that it supports the national curriculum. Bionet also worked with Arequipa leaders to develop a system for evaluating the success of the science labs in these schools.

Intel helped install a wireless network, and Intel and PASCO Scientific have worked closely with educators at the Arequipa schools to help teachers use the technologies effectively. Intel provided two days of training on the Intel-powered classmate PCs. PASCO has been in continuous contact with the schools, and has provided product and instructional training in Peru. In addition, at the request of regional leaders, five teachers and 15 students attended an off-site training session at PASCO's headquarters in California.

## Impact

In the past, science education at the Arequipa schools was based on traditional books, lectures, and basic experiments. These new science labs focus on inquiry-based learning and the experimental method, with students using the technologies to observe, analyze, and prove concepts. Students conduct experiments based on the national curriculum, reinforcing their understanding of the concepts of physics, biology, and chemistry.

Using the Intel Learning Series solution, teachers are able to make science more relevant to students' lives and enable students to understand the characteristics of their environment. For instance, students have measured the quality of their drinking water, the intensity of light in their classroom, and the effects of light, temperature, and humidity on plants. Students have created projects for the end of the semester, and teachers have organized science fairs.

Surveys conducted by Bionet at the Arequipa schools and a PASCO proof-of-concept project in Lima show that the solution improves students' skills in creative thinking, decision making, critical thinking, and problem solving. Students at schools that used the technology-enabled, experiment-based curriculum scored 75-80 percent on these goal skills, compared to only 25 percent of the students in the traditional skills. Students also showed better results on standardized achievement tests.

Teachers are growing professionally by using the new tools. They mentioned that they felt like they were playing and learning with the sensors. After initially following PASCO activities, teachers have become more confident and now develop their own activities using the software and sensors. Teachers and students have enjoyed using the sensors so much they began to find new applications. For example, they helped doctoral students conducting water quality analyses in Arequipa.

"These are great tools to learn science. My students can collect data of the experiment very easily, and retake data if necessary. The software helps them to analyze, understand, and confirm what they have previously learned in the classroom."

– Karin Ramos Torres, Teacher

## INTEL LEARNING SERIES SOLUTION

### Education challenge

- Improving science education for junior high school students

### Solution elements

- Intel-powered classmate PCs
- PASCO PASPORT Probeware\*
- PASCO SPARKvue\* data logging software

### Solution providers

- Intel Corporation
- Bionet SAI
- PASCO Scientific

## What's Next?

Equipped with new solutions from the Intel Learning Series, Arequipa is giving students a 21st century science education. Students and teachers have improved their ability to resolve problems based on the experimental method, and students are developing knowledge, skills, and attitudes that make them better able to understand the world around them and contribute to the growth of knowledge. In this way, Arequipa is creating a foundation for economic growth.

Educational leaders are so excited about the results that they have now equipped 10 more schools, and are planning a third phase of the project to equip six or seven more schools.

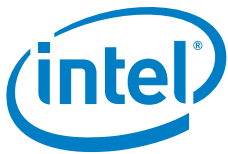
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## Intel® Learning Series

Advancing Education Worldwide

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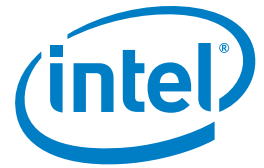
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# Art and Robotics for Third-Graders



## About Buckman Arts Focus Elementary School

Buckman Arts Focus Elementary School is both an inner-city neighborhood school and an open-admission magnet school that provides an innovative, arts-integrated academic curriculum to kindergarten through fifth grade students within the Portland (Oregon) Public School System. Buckman nurtures and challenges the whole child, nourishing each student's intellectual, social, emotional, physical, and artistic development and fostering a lifelong love of learning. The school's arts specialists provide concentrated instruction in drama and music, fine art, and dance, as well as collaborating with classroom teachers to integrate arts into the core curriculum. Buckman welcomes students from all parts of the city, all ethnic groups, and all socioeconomic backgrounds, and the school received an Outstanding rating from the State of Oregon in 2009.

## Education Challenge

Third-grade teacher Michael Scott at the Buckman School has been a big advocate of using technology inside and outside of the classroom to engage his students in the thrill of discovery. Under the auspices of an Intel-sponsored program called "Power of Learning Together," Mr. Scott engaged with Intel and schools in Germany, India, and Mexico to develop and share student activity plans based on Intel® Learning Series solutions.

## Intel® Learning Series Solution: Cross-Curricular Lessons with Elementary Robotics

In one lesson designed by Mr. Scott, his third-grade classroom at Buckman Arts Focus Elementary School used convertible Intel-powered classmate PCs with the LEGO® Education WeDo® Robotics Set, a solution from the Intel Learning Series. WeDo Robotics is a cross-curricular elementary robotics concept and programming software designed to teach science, technology, engineering, and mathematics (STEM) concepts while also incorporating language arts, creative problem solving, and teamwork. By combining the WeDo Robotics Set with WeDo Robotics programming software on the Intel-powered classmate PCs, students can build and program robotics models, and involve them in story-writing, problem-solving, and other innovative projects. Intel-powered classmate PCs are rugged, affordable, child-friendly netbook computers designed to easily integrate technology into the lives of students, teachers, administrators, and parents.

The Buckman third graders worked on a project titled Mythical Birds. The teacher divided the class into three groups, and asked each group to select a leader to help manage the project. From there, each group subdivided into two teams. One team

"A great part of the Mythical Birds project is that all children were actively involved! The writers, scientists, inventors, and artists all worked together to create the birds and their mythical environment."

– Michael Scott,  
Third-Grade Teacher,  
Buckman Arts Focus Elementary School

created a pair of birds using the LEGO WeDo construction set, and the other team created a habitat for their birds by using Ambient Design's ArtRage\* 2 program, another solution from the Intel Learning Series. ArtRage enables students and others to paint, sketch, and draw on the on an Intel-powered classmate PC or other computer.

As each team finished its birds or habitat, the groups came back together to combine their birds and habitats and decide how they would present them to the class. In the end, each team shared its completed project—moving birds, habitat, and oral description—with the class.

### Solution Support

Buckman School already had a wireless network in place, and LEGO Education and Intel have worked together to ensure the WeDo Robotics programming software runs seamlessly on the Intel-powered classmate PCs. As a result, Buckman was able to implement the educational solution with little to no additional support.



## Impact

The Mythical Birds activity combined the use of a number of important skills, including:

- **Teamwork.** All students had to work together in a timely manner to create one final project that was cohesive and that everyone was satisfied with.
- **Creativity.** Students were challenged creatively when asked to create and design a habitat using the ArtRage 2 program.
- **Technology.** Students using the LEGO materials were challenged from an engineering and programming perspective. They were asked to not only construct physical representations of their birds, but also program the movement and behavior of their robotics creatures.
- **Communications.** The presentation component of the project required all students to work on their listening and communication skills.

This project also combined many styles of learning, and to be successful, each group had to incorporate these styles. This had a positive effect. "This meant that some students who normally would be in the background of group work moved forward and became more dominate contributors," said Michael Scott, who led the lesson. "I believe this technology and the project-based learning style allowed for some subdued students to really find their comfort zones. As a teacher, that's always gratifying to see."

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### Education challenge

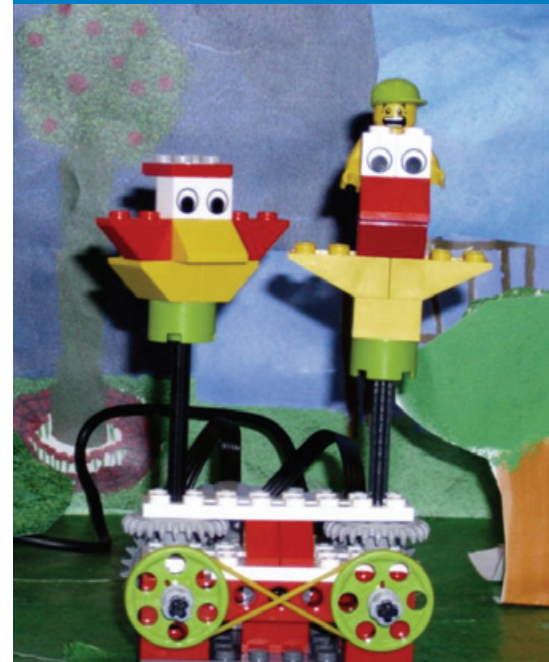
- Develop innovative, effective lessons that use technology to help students discover and explore while learning math, science, and language arts

### Solution elements

- Intel-powered classmate PCs
- LEGO® Education WeDo® Robotics Set
- Ambient Design ArtRage® 2

### Solution providers

- Intel Corporation
- LEGO Education
- Ambient Design



## What's Next?

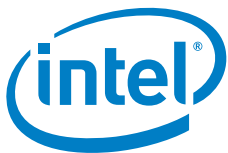
Because of collaborations like this, elementary schools everywhere can confidently pair cost-effective Intel-powered classmate PCs with LEGO Education sets and curriculum, giving students access to the latest technology and engaging learning tools. Teachers can use technology as a learning tool to support, extend, and enable learning beyond traditional educational boundaries.

The project also yielded best practices that are being shared to increase success for other schools and teachers. For example, Michael Scott discovered that group size is an important factor to consider. "In my class each group had nine students," he said. "For this to be more successful, each group should consist of no more than five students. If at all possible I would have liked to have had more than three of the LEGO WeDo sets for this project."

At Buckman School, new third graders will use the Intel-powered classmate PCs, LEGO WeDo sets, and ArtRage, and plans are in the works for at least one project that will combine creative writing with a presentation to the class. Other classes are also using classroom sets of an earlier Intel-powered classmate PC model.

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