Samsung Smart School
An interactive and collaborative learning environment for the next-generation classroom
Discover new avenues for students to learn and educators to manage.

Explore new ways to enhance learning and productivity

Schools have an essential role in preparing students to become productive members of society. Educators around the world have the same vision for their schools:

- Provide a superior-quality educational experience
- Nurture a professional, highly skilled teaching staff to help students reach their full potential.
- Manage their schools in an efficient and cost-effective manner.

As education needs evolved, educational software, digital books and applications have increased in availability. Also, as technology advances with the proliferation of Internet-connected mobile devices, such as smart phones and tablets, users are finding new methods to share information. As a result, educators are exploring ways to use these tools in the classroom to enhance learning and productivity. Most modern classrooms are expected to be connected to the Internet through Wi-Fi or wireless broadband and are equipped with desktop PCs, notebooks and even tablet PCs. Classrooms are evolving from isolated learning environments into global collaborative learning centers.

Internet access in schools, along with digital content development and learning management systems, has fostered real-time communication between students and teachers.

Digital education solutions for the next-generation classroom

As demand for digital education tools grows, device manufacturers and solution providers are realizing emerging opportunities in the academic field. Governments are beginning to understand the importance of adapting to the changing needs of tech-savvy students. As a result, many governments are implementing aggressive initiatives, such as digitizing public school textbooks. Their primary goal is to make fundamental improvements to education through interactive teaching tools in the classroom and beyond.

Although most educators are aware of these planned changes, many are uncertain about how the classroom teaching environment will change. However, progressive schools are implementing electronic classroom teaching tools and are finding improved results in learning engagement and classroom management.

The Samsung Smart School solution helps boost student retention rates by providing an interactive learning environment where they actively participate in the lesson. Students become more engaged in the subject matter with hands-on experience and collaboration in the classroom and beyond, helping them to retain what they learn.

Figure 1. Paradigm shift in education from teacher-centric to student-centric learning methods
Create an interactive and collaborative learning environment with Samsung Smart School

Teachers are finding it increasingly difficult to provide personalized attention to students. This challenge is becoming a serious concern among K-12 educators. As a result, teachers are looking for dynamic new ways to engage students in the learning experience. Educators need to focus on tools that not only motivate students to learn, but also increase collaboration and enthusiasm. Advances in digital technology have opened new avenues of communication, which are being translated into valuable teaching tools.

Samsung Smart School is a total digital education solution that integrates the Samsung GALAXY Note 10.1 tablet with an interactive solution. This innovative solution helps teachers engage their students and provide classroom management at heightened levels of efficiency. Thus far, no other electronics manufacturer has developed a total learning solution specifically for the education market.

Samsung Smart School includes the following key features:

- **Interactive Teaching.** Supports in-class interaction using functions such as screen sharing, screen monitoring, group activity, quiz and poll and much more.

- **Learning Management.** Aids teachers in course management, administration and lesson planning.

The Samsung Smart School solution incorporates an e-Board and a network environment in each classroom. A central server in the school stores course content and user information. Teachers can either use a tablet or PC, which are mirrored to the e-Board, and can share their screen with students. Students can participate in the Samsung Smart School class using their tablets.

“At Memphis City Schools, our students come first and we strive to provide them with a well-rounded education and all the necessary elements to thrive, both in school and in their future adult lives.”

— Cleon Franklin,
Director of Instructional Technology,
Memphis City School District
Encourage students to learn with Interactive Teaching

Samsung Smart School provides a dynamic student learning experience for real-time interactions between the teacher and fellow students. Using Samsung GALAXY Note 10.1 tablets and Interactive Teaching features, designed to enhance teacher-to-student interaction, students can actively participate in the learning experience. Implementation of this solution can result in better student engagement.

Samsung Smart School Interactive Teaching features include:

Screen Sharing
Teachers with tablets or PCs can display content on students’ tablets and students can share content and their notes with teachers. Page synchronization on Content Viewer, real-time screen sharing and file transfer capabilities are also available for a teacher and students.

Screen Monitoring
Teachers can see students’ screens in thumbnail format and choose a student’s screen to display in a larger format on the teacher’s e-Board. Samsung’s AllShare Cast dongle accessory enables wireless screen sharing between the teacher’s tablet and e-Board. The Screen Monitoring feature also enables teachers to monitor each student’s progress or activity and share it with the class through the teacher’s e-Board. Teachers can use the Private Teaching function, which permits monitoring and controlling a student’s device remotely.

Also, while sharing a screen, a teacher can assign a presenter who can be authorized to write on to the screen, which is then instantly shared with other classmates. This function encourages student engagement and participation in the class.

Figure 3. The Screen Sharing feature offers real-time screen sharing and file transfers between teacher and students.

Figure 4. Teachers can see students’ screens in thumbnail format on their tablet and mirror the image on their e-Board using the AllShare Cast dongle accessory.
Lock and Auto Launch
The Lock feature enables teachers to block screen interactions and applications to help control non-class-related activity. If required, the teacher can shut down all students’ devices at one time. Using the Auto Launch feature, teachers can activate a URL, application or timer. Teachers can send website URLs needed for the class directly to the students’ tablets or activate learning applications. This feature is designed to aid teachers in using learning resources and guiding students in class.

Group Activity
The Group Activity feature helps encourage interactivity and group participation among students. Included in the Group Activity feature are Joint Work and Group Discussion functions.

Under a group leader’s guidance, an image is split into sections on the tablet for a group activity. Each group leader shares one part of the assignment with each member of the group. When the members of the group have completed their individual parts of the assignment, the group leader combines the parts using the Joint Work function. The group leader then sends the combined group assignment to the teacher.

The group leader can assign a presenter to navigate the pages or add notes on the screen to share among the group members or class. This method uses the Group Discussion function and encourages group activities.

Figure 5. The Lock feature enables teachers to shut down student devices at one time, as shown here, to get student attention.

Figure 6. The Group Activity feature splits the screen content onto multiple screens to share and compare side-by-side.
Encourage class participation and monitor student progress

Quiz and Poll
Teachers can create various templates to conduct quizzes or polls. Quizzes can be prepared by the teacher before class and polls can be administered during class.

![Quiz and Poll](image)

Figure 7. Teachers can administer quizzes or conduct polls and receive real-time results with the Quiz and Poll feature.

Content Viewer
Microsoft® PowerPoint®, Microsoft Word®, and PDF files can be viewed using Content Viewer. Images in JPEG, PNG, GIF and BMP formats can also be viewed using this feature. Students can access the content prepared by the teacher prior to the class. On this viewer, the teacher and students can access hyperlinks and web links directly.

![Content Viewer](image)

Figure 8. Students can access content previously prepared by the teacher on their tablets with Content Viewer.
Share results with writing or drawing on tablets and effectively manage class schedule

Whiteboard and S Note
Teachers can display multiple pages on their e-Boards. The included S Pen enables teachers and students to take private notes on their devices using the S Note function during class. Samsung’s S Pen provides responsive, pressure-sensitive handwriting functionality for a realistic writing experience. In addition, the productivity functions provided in the S Note interface transform handwriting and drawn objects into typewritten text and perfect shapes. The content can then be saved in JPG or PDF format and exported for sharing.

Figure 9. Multiple pages can be displayed on the teacher’s e-Boards.

Time Management
Teachers can preset timetable roll calls before a class begins. Time Awareness function then opens a scheduled class according to the timetable. Teachers can also open temporary classes, which are independent of the timetable.

Figure 10. On the Main Screen, the timetable, school notices and message board are shown. The teacher and students can enter the current class or access Contents Library.
Handle course management, content and communications directly from the tablet.

Manage course and user information with Learning Management

Classroom management and lesson planning can be daunting tasks for teachers. With Learning Management, teachers can handle these functions more easily by performing them electronically using their GALAXY Note 10.1 tablets. Samsung Smart School also includes valuable features for administrators to use in the management of school information.

Samsung Smart School’s Learning Management features include:

**Course Management**
This function is designed to help school manage the course enrollment, class allocation and timetable scheduling functions. Course Management helps manage multiple courses, teachers and students, times and locations, attendance, penalties and rewards, boards, forums, content, quizzes and polls, reports and scores.

**User Management**
Information, including names of teachers and students, can be added, edited or deleted. Teachers can import and export student information, attendance and grades.

**Content Management**
Teachers can share local files, photos, audio recordings, movies, applications and URLs in Contents Library. Content Management includes My Box for teacher-only use and Public Box for sharing with students. Students can access the Public Box and download learning content previously uploaded by the teacher. In addition, teachers can centralize and manage student test records, questions, quizzes and polls with Quiz Bank.

“I used to hand out pictures or copies of articles, but now students can search for themselves. So I don’t need to spend time in front of the copy machine.”

- Gi-Sung Cho, Teacher
  Gyeseong Elementary School

**Communication**
A teacher and student can communicate with the Messaging function. Students can ask questions or send their opinions to the teacher. The Messaging function also includes the Board and Forum function. Teachers can use this function to create a forum on each class subject where students can discuss and share ideas with each other.

**Notice Board**
Teachers can share public announcements about the school with the Notice Board function. Announcements are shown on the main screen when students log in on their devices.
Plan and conduct daily class activities with Smart School features.

**Samsung Smart School classroom scenario**

The following examples describe how the Samsung Smart School solution functions in a typical smart school environment:

1. **Preparation using Course Management, User Management and Contents Management**
   At the beginning of the academic year, class administrators can share information about the semester class, subjects, teachers and students using tablets. After the information is finalized, teachers can plan their class schedules and upload class materials. Students then gain access to the class materials in advance and can prepare for the upcoming class.

2. **Start class using Time Awareness, Screen Monitoring, Lock and Launch and Content Viewer**
   As the class commences, teachers can monitor students’ screens in thumbnail format on their tablets to determine if everyone is ready to participate. By monitoring students’ screens, teachers can point out which students are not ready for class and lead them to pay attention by locking their screens. Also, by sharing URLs, teachers can direct students to video clips related to the class materials, helping to increase student interest. When the class starts, students can access the content prepared by the teacher.

3. **Class in progress using Screen Sharing, Whiteboard and S Note, Lock and Launch, Communication (Messaging) and Screen Monitoring**
   Teachers can share their own tablet screens and notes with students by using the Screen Sharing feature. The teacher can give a student permission to write on the screen that is being shared with the class. During class, students can take notes using the S Pen and S Note features. The teacher can launch educational applications on the students’ devices to help lead the class.

   When a teacher assigns a group activity to the class, students can produce their finished work with Joint Work and Group Discussion functions. If students have questions or opinions, they can send them back to the teacher’s device through the Messaging function. The teacher can answer the questions or share opinions with students using Messaging, as well. Students can present and share their group work or personal work with the rest of the class by broadcasting it on the e-Board.

   To help ensure that all students pay attention in class, the teacher can use the Lock and Launch feature to block non-class-related applications, URLs and other content on students’ devices.

4. **Evaluation using Quiz and Poll**
   Teachers can monitor and evaluate students’ degree of understanding and performance with a quiz, which can be prepared prior to class. Teachers can also give an instant poll during class. Because teachers can almost instantly check response rates, they can determine if students need individual attention.

5. **Wrap up using Content Management and Communication (Board and Forum)**
   After classes, students can check the Contents Library and download materials related to the class. This access enables students to review what they learned in the class and prepare for the next class. Students can discuss the subject matter with fellow students and share their thoughts using the Board and Forum feature, which is available for each subject.

   Initial testing in actual classrooms showed that Samsung Smart School increased school competitiveness and improved student concentration by 23 percent. Teacher productivity was improved by approximately 10 percent.
Plan and conduct daily class activities with Smart School features.

Transform the educational experience with Samsung Smart School

Educational institutions are always seeking new ways to enhance the learning experience. While providing critical personalized attention to students, the management of class activities, students’ progress, and lesson plans is a daunting task for teachers. This drives an increasing demand for digital technology within the education market.

As the technology industry continues to evolve, it brings new opportunities for schools and teachers to find innovative tools to enhance student education. Today’s tech-savvy K-12 pupils have grown up with electronic devices. As a result, they are more responsive to technology and better engaged in the learning experience when these tools are part of their classroom environment.

Samsung is the first and only electronics manufacturer to date to develop a total learning solution tailored specifically to the education environment. Samsung Smart School provides rich Interactive Teaching features designed to encourage students to become active participants in the classroom. Studies have shown that this type of interactive teaching method greatly improves student retention.¹

In addition, the solution includes Learning Management features, which include robust functions to help teachers with classroom management. Teachers can use these functions to more efficiently share lesson plans and provide personalized help to students who need further tutoring. Each task is handled directly through the teacher’s tablet and PC as well.

Information management aids teachers in managing student data, such as general information, attendance and so on. Students can also access course information and learning content more easily with this feature.

With extensive expertise in developing e-Boards, tablets and related software, Samsung has successfully implemented the Smart School Solution in eight K-12 schools in South Korea.

This technology helps keep students engaged, helps foster a positive learning experience and helps teachers provide personalized attention and improved classroom management. Educators can no longer ignore the potential benefits of electronic learning tools in the classroom environment.

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### Key features and benefits

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
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<tbody>
<tr>
<td>Screen Sharing</td>
<td>Teachers and students can share content with each other, providing dynamic interaction among all participants in the class.</td>
</tr>
<tr>
<td>Screen Monitoring</td>
<td>Teachers can remotely monitor students’ progress and activities. Also, a student’s device screen can be shared on a large screen by using an e-Board for student presentations.</td>
</tr>
<tr>
<td>Lock and Auto Launch</td>
<td>To help ensure proper and secure use of student tablets, teachers can remotely lock students’ applications, screens and input functionality. With Auto Launch, teachers can activate and open useful URLs and applications on students’ tablets.</td>
</tr>
<tr>
<td>Group Activity</td>
<td>Content can be split on multiple screens to share and compare side-by-side. Students can have a group discussion by sharing screens and assigning a group presenter.</td>
</tr>
<tr>
<td>Quiz and Poll</td>
<td>Teachers can administer quizzes, conduct polls and quickly assess how well the class comprehends materials.</td>
</tr>
<tr>
<td>Course Management</td>
<td>Information, such as term, timetable, contents, related to subject can be managed fitting to each school.</td>
</tr>
<tr>
<td>Contents Library</td>
<td>Teachers can upload a variety of class and learning materials. Students can download the materials they need onto their devices.</td>
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Solution system requirement

<table>
<thead>
<tr>
<th>Items</th>
<th>Requirements</th>
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</thead>
<tbody>
<tr>
<td>Server hardware</td>
<td>(Based on 100 student users)</td>
</tr>
<tr>
<td>CPU:</td>
<td>Quad-core processor 2.0 GHz</td>
</tr>
<tr>
<td>RAM:</td>
<td>8 G</td>
</tr>
<tr>
<td>Above HDD:</td>
<td>1 TB (7,200 RPM)</td>
</tr>
<tr>
<td>OS:</td>
<td>Microsoft Windows Server® 2008 R2</td>
</tr>
<tr>
<td>Browser:</td>
<td>Internet Explorer® 8, Internet Explorer® 9</td>
</tr>
<tr>
<td>Note:</td>
<td>When multiple users download files at the same time, the network environment may be affected.</td>
</tr>
<tr>
<td>Server software</td>
<td>Java™: 1.6, WAS: Apache Tomcat™ 6</td>
</tr>
<tr>
<td></td>
<td>DB: PostgreSQL® 9.1</td>
</tr>
<tr>
<td>Client PC</td>
<td>CPU: Intel® Pentium Processor 1.8 GHz (Intel Core 2 Duo 2.0 GHz or higher recommended)</td>
</tr>
<tr>
<td></td>
<td>RAM: 1 GB</td>
</tr>
<tr>
<td></td>
<td>HDD: 500 MB</td>
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<tr>
<td></td>
<td>OS: Windows XP® SP3, Windows Vista®, Windows 7®</td>
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<tr>
<td></td>
<td>Resolution: 1,024 x 768 (800), 32 bit</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: Microsoft.NET Framework v3.5 SP1, Microsoft DirectX® v9.0 or higher</td>
</tr>
<tr>
<td>Note:</td>
<td>Network quality may be affected by environmental conditions such as classroom space, arrangement and network device models. Therefore, professional support for network setup is recommended.</td>
</tr>
<tr>
<td>Wireless network</td>
<td>AP: Enterprise-level, 802.11n, 5 GHz, Channel Bonding (20 users per access point)</td>
</tr>
<tr>
<td>Note:</td>
<td>Network quality may be affected by environmental conditions such as classroom space, arrangement and network device models. Therefore, professional support for network setup is recommended.</td>
</tr>
<tr>
<td>TVs and e-Boards</td>
<td>Note: GALAXY Note 10.1 features wireless screen sharing for TVs by way of AllShare Cast (HDMI® supported)*</td>
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<tr>
<td></td>
<td>Samsung Smart School PC client enables e-Board input from electronic boards (HID interface supported). *Available on HDMI® supported devices only</td>
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Device specifications

<table>
<thead>
<tr>
<th>Items</th>
<th>Samsung GALAXY Note 10.1 specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>25.64 cm (10.1 in.) Wide Extended Graphics Array (WXGA)</td>
</tr>
<tr>
<td>Processor</td>
<td>1.4 GHz quad-core</td>
</tr>
<tr>
<td>Memory</td>
<td>2 GB RAM</td>
</tr>
<tr>
<td>Storage</td>
<td>16, 32, 64 GB + MicroSD</td>
</tr>
<tr>
<td>Front camera</td>
<td>1.9 MP FF (720 p HD recording)</td>
</tr>
<tr>
<td>Rear camera</td>
<td>5 MP AF with LED Flash (720 p HD recording)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>262 mm x 180 mm x 8.9 mm (10.32 in. x 7.1 in. x 0.35 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>600 g (1.32 lb)</td>
</tr>
<tr>
<td>Battery</td>
<td>7,000 mAh</td>
</tr>
<tr>
<td>OS version</td>
<td>Android™ 4.0 Ice Cream Sandwich and Jelly Bean (JB)</td>
</tr>
<tr>
<td>Additional features</td>
<td>TouchWiz, Hubs, AllShare Cast, Wi-Fi channel bonding, Dropbox</td>
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<tr>
<td>Digital pen writing</td>
<td>S Pen embedded, Pen UX (S Note, S Planner) Adobe® Photoshop® Touch</td>
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About Samsung Electronics Co., Ltd.

Samsung Electronics Co., Ltd. is a global leader in semiconductor, telecommunication, digital media and digital convergence technologies with 2011 consolidated sales of US$143.1 billion. Employing approximately 222,000 people in 205 offices across 71 countries, the company operates two separate organizations to coordinate its nine independent business units: Digital Media & Communications, comprising Visual Display, Mobile Communications, Telecommunication Systems, Digital Appliances, IT Solutions, and Digital Imaging; and Device Solutions, consisting of Memory, System LSI and LED. Recognized for its industry-leading performance across a range of economic, environmental and social criteria, Samsung Electronics was named the world’s most sustainable technology company in the 2011 Dow Jones Sustainability Index. For more information, please visit www.samsung.com.

For more information

For more information about the Samsung Smart Education, visit www.samsung.com/SmartSchool or contact smartedu@samsung.com.