

Inspire new learning experience with Samsung School

Student-centric learning for the next generation



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 schools in an efficient and cost-effective manner

As education needs have evolved, the availability of educational software, digital books and applications has increased. Also, as technology advances with the proliferation of Internet-connected mobile devices such as smartphones and tablets, users are finding new ways to share information. As a result, educators are exploring how 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. Internet access in schools, along with digital content development and learning management systems, have fostered communication between students and teachers. Classrooms are evolving from isolated learning environments into global collaborative learning centers.

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 digitalized public school textbooks. Their primary goal is to make fundamental improvements to education through interactive teaching tools in the classroom.

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 School solution helps boost student retention by providing an interactive learning environment where students actively participate in the lessons. Students become more engaged with the subject matter with hands-on experience and collaboration, thus increasing knowledge retention.



Making learning easy, effective and fun through better management.

Create an engaging, manageable and collaborative learning environment with Samsung 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 must 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 School is a total digital education solution that integrates an array of Samsung's mobile devices with interactive software. This innovative solution helps teachers engage their students and provides educational system management at heightened levels of efficiency.

Samsung School's key characteristics create the new student-centric learning experience:

- **Manageable.** Features such as Student Device Control, Screen Monitoring and Lesson Toolbar help teachers monitor students' activities and progress, employ various, interesting educational applications and maintain students' attention during class. In addition, Course Administration and Content Management features keep everything running smoothly and provide ready access to information.
- **Collaborative.** Separable Canvas, Group Discussion and Group Report enable students to learn together, sharing ideas and interacting with digital resources while they improve their interpersonal skills and problem-solving abilities.
- **Engaging.** Teachers and students can share various, dynamic lesson materials and apply innovative technology to the learning experience through the Screen Sharing and S Pen digital handwriting features. Teachers can quickly assess student comprehension and give immediate feedback through the student-engaging Quiz and Poll feature. All class participants can view files in various formats with Viewer, and communicate through the Texting and School Announcement features.

"Technology and innovation are at the core of the ever-changing world of education. Academic success is our top priority, and incorporating technology (of Samsung School) into academics better prepares our students for the world outside school walls."

— Dr. Kriner Cash, Former Superintendent, Memphis City School

The Samsung School solution incorporates large display devices, such as e-Boards, projectors, LCDs and so on, with interactive devices in each classroom. Teachers can choose and use either tablets or PCs, according to their needs in different educational situations. They can switch between devices to meet their needs based on the automatic synchronization of devices. The tablets or PCs are mirrored to large display devices through Samsung-owned Allshare technology. The wireless screen mirroring is enabled through the Samsung AllShare Cast Dongle accessory. Teachers can also share their screens with students' tablets to create an interactive class with enhanced student participation.

Samsung School provides two modes for the ultimate in flexibility and adaptability: School Mode and Class Mode.

School Mode has a central school server that stores and manages course materials and student information. With this system, schools can effectively manage information and can support seamless content and information sharing among classes.

Class Mode enables users to store course materials and student information on teacher's and students' devices within a classroom. Thereby, Class Mode can help enrich lessons by providing quick, easy access to content and information. The Samsung School system can be readily adopted and easily installed without the need to install servers.

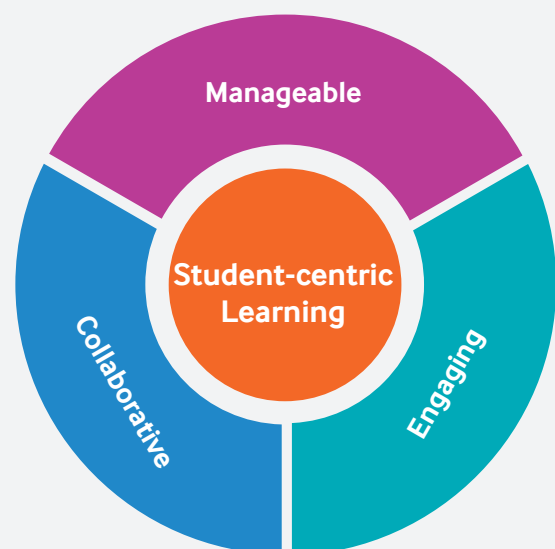


Figure 1. Student-centric learning of Samsung School.

Advanced management capabilities for a better learning environment.

Encourage students to learn with more effective education management

A highly manageable educational organization allows teachers to better engage students for increased student participation. Samsung School empowers educators to provide a variety of lesson content, to monitor each student's progress and understanding levels, and to control the students' activities and devices. The solution also facilitates easy course administration and content management. Following are some key Samsung School manageability features.

Screen Monitoring

The Screen Monitoring feature helps teachers provide individual help more quickly, and encourages student engagement and class participation.

Students' screens can be viewed in a thumbnail format on the teacher's tablet or PC. From the thumbnails, a student's screen can be selected and displayed in a larger format on large display devices such as e-Boards. The teacher can ask the student to present the material while the student controls his or her own tablet. The Lucky Stamp feature encourages student motivation and interest and enables the teacher to praise the students' efforts. A teacher can give a Lucky Stamp to a student who did well on his or her presentation. This feature also informs other students in the class of the award by displaying the Lucky Stamp on their devices.

The Screen Monitoring feature enables teachers to monitor each student's progress or activity. Teachers can help any student who isn't keeping up with the class by remotely controlling the student's device with the Private Coaching feature.



Figure 2. The Screen Monitoring feature for observing the students' progress and activity.

Student Device Control

With Student Device Control, teachers gain the ability to control an individual student's device or all devices in an entire class. If a student becomes distracted, a teacher can send that student's device a block message to regain the student's attention. Teachers can further block interactions so that the student can only see the current screen and can't manipulate the device.

Teachers can use the app whitelist to manage a list of applications that students can access during the class. Teachers must grant permission for launching specific apps, which discourages students from activities unrelated to the curriculum. If required, all student devices can be powered-off at the same time.



Figure 3. The Student Device Control feature for controlling a single student's device or an entire class's devices.

Lesson Toolbar

Lesson Toolbar provides students with a highly enriched, dynamic learning experience while giving teachers more flexibility to meet spontaneous student needs that arise during lessons. It includes features that facilitate the use of content, and interactive management tools that enhance classroom productivity. For example, the Annotation

feature increases student comprehension by allowing the teacher to quickly write on content displayed on the screen. Screen Sharing enables better interaction through near-instant sharing of teacher and student screens. With Screen Sharing, teachers and students can see the content on the other participants' screens to further enhance interactivity. Screen Monitoring and Screen Lock help students stay focused in class. Auto Run provides easy access to content and applications through bookmarking. And, File Transfer supports seamless, continuous learning with the easy transfer of files among class participants.



Figure 4. The Lesson Toolbar for easy access to content and interactive class management tools.

Teachers can use the primary functions of Samsung School through Lesson Toolbar while they view other learning content installed on the teachers' tablets on their screens. Without the need to switch between the content and Samsung School, the Lesson Toolbar allows teachers to use various sources, including web content or educational applications, more easily.

Easier class and content management with dynamic group collaboration.

Remote Launch

Remote Launch helps teachers use learning resources and guide students during class. Teachers can send website connections needed for the assignment directly to the students' tablets. They can also activate learning applications or a timer on every student's device at once to time specific learning activities or exams.

"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

Course Administration

This feature is designed to help educators easily create and organize courses through the use of simple management tools. Only basic information, such as the names of teachers, students and courses are needed to create courses.

The Samsung School solution's interactive, intuitive user interface helps students participate in classes more easily. In Class Mode, students can conveniently join the class through a Quick Response (QR) code or by an invitation message. In School Mode, students can automatically participate in classes.

Content Management

Public Library enables effective content management by storing a large amount of data on a central server which students can access. As an information hub, the server enables individual users or classes to conveniently and efficiently share or use various content.

Local Library on teachers' and students' PCs and tablets allows fast, easy content access. Teachers can share course materials in Public Library, which includes My Box for teacher-only use and Public Box for students. Students can access Public Box and download learning content. In addition, teachers can centralize and manage student questions, quizzes and polls with Quiz Bank.

Help students share ideas and improve interpersonal skills through collaboration

Samsung School's classroom collaboration features help encourage interactive group participation among students.

Group Discussion

Up to six participants can simultaneously write on the screen while implementing Screen Sharing. The concurrent multiple use of a screen greatly enhances interactivity and the chance for more collaborative group activities.



Figure 5. The Group Discussion feature for interactive screen sharing and collaboration.

Group Report

A group leader can assign each group member a piece of a report. Then, using individual tablets, each member can write a report section on provided templates. When the members complete the sections, the group leader combines the individual work sections into a final completed report.



Figure 6. The Group Report feature for creating a composite report.

Separable Canvas

An image can be split into sections, with each section containing an assignment. Students complete the individual assignments, and the sections are then reassembled by the group leader, who then sends the finished work to the teacher.



Figure 7. The Separable Canvas feature for completing a composite image lesson through teamwork.

A classroom that comes to life with engaged, digitally-enabled students and teachers.

Engage students with dynamic, innovative tools and technologies

Samsung School keeps students engaged in lessons by providing shareable educational content in various formats. The solution also offers quick, easy assessment features and an appealing learning method. In addition, Samsung School helps students and educators communicate.

Screen Sharing

Content can be displayed on the students' devices through the Screen Sharing feature. While sharing a screen, a teacher can authorize a student to write on the screen, which, in turn, is shared with classmates. This function encourages student participation.

In addition to sharing screens, the instructor can distribute files to students during class. The file transfer feature enables the class participants to share files, and enables teachers to distribute content to students or specific groups.



Figure 8. The Screen Sharing feature for sharing notes, content and files.

Quiz and Poll

To enthrall and delight students, teachers can easily create and implement diverse types of quizzes and polls using various templates. The templates provide a straightforward way to generate short-answer, single-choice, multiple-choice, and true-or-false questionnaires. Teachers can also use various images to make quizzes more engaging and creative. For polls, teachers have many options including using colors or drawings instead of text.

Automatic synchronization of lesson data and screens between PC and tablet devices during class enables teachers to maintain control over the classroom.



Figure 9. Quiz and poll features for creating and organizing engaging tests and polls.

Educators can check students' answers on their tablets and track individual student progress. Automatic synchronization among devices enables teachers to continue lessons seamlessly while on the move or from PCs at their desks.

Teachers can save their quizzes in the Quiz Bank for other teachers to use. Scores can be checked conveniently through the course information section and displayed using graphs or tables. Teachers can encourage participation by creating customized learning plans based on student comprehension.

Communication

Teachers and students can communicate with the Texting and School Announcement features. Students can ask questions or send their opinions to the teacher and get answers using the Texting feature. In addition, students can check school information through School Announcement feature.

Digital Handwriting Capability

The included Samsung S Pen enables teachers and students to take private notes on their devices during class using the S Note function. The S Pen provides

responsive, pressure sensitive handwriting functionality for a realistic writing experience. The S Note mini button on the right corner of the screen helps capture handwritten notes instantly. Students can make personal notes and save them on Local Storage for reviewing later. Additionally, teachers can write teaching notes in the whiteboard section of their devices. The notes can be shared with students through large display devices and the teacher can annotate the notes. The annotations are mirrored on the large display device.



Figure 10. Handwriting capability with S Pen for a realistic writing experience.

Viewer

Teachers and students can access, view and use various types of lesson content with Viewer. File types include: Microsoft® PowerPoint®, Microsoft Word®, Microsoft Excel® and PDF. Images in JPG, PNG, GIF and BMP formats can also be viewed. Students can automatically access content prepared by the teacher before the class. Using Viewer, teachers and students can directly access hyperlinks and web links. Content is automatically fitted to the Viewer screen with the auto-rotation function, which enables the viewing of horizontal content in a vertical format.

Samsung School solution: dynamic, student-centric learning in everyday practice for great results.

Envision a smart learning environment with Samsung School classroom scenarios

Following are examples of how the Samsung School solution can be applied in typical smart school environments.

1. Preparing for class

Course Administration, Content Management, User Management

Teachers and school administrators create and set up classes conveniently with the Samsung School solution's easy-to-use administration and management tools. The teacher needs only basic information, such as the students' names, teachers' names and course name, to set up a class. Using the Content Management feature, teachers and students can conveniently share or use various content from the school server in School Mode or from the teacher's PC in Class Mode. Student participation is simple and easy with Class Mode and School Mode. In Class Mode, the students access the class with a QR code or invitation message. In School Mode, the students' class participation is automatic.

2. Holding students' attention

Screen Monitoring, Remote Launch, Viewer, Student Device Control

During class, a teacher monitors the students' screens in a thumbnail format on a tablet or PC to ensure that everyone is focused on the lesson. By monitoring students' screens, the teacher discovers when students aren't participating in the activities. The teacher controls the pace of the class, waiting for any pupils who aren't ready to move on to the next step. By sharing URLs, the teacher directs students to video clips related to the classroom discussion, helping increase the students' interest. The teacher also shares the content from his or her device with the students' devices and blocks non-class-related applications, making sure that everyone stays on the same page.

3. Engaging students in learning

Screen Sharing, Handwriting Capability, Remote Launch, Lesson Toolbar

With Screen Sharing, a teacher shares a screen and notes with students. The teacher then grants students the ability to write on a screen that is being shared with the class. Students take notes using the S Pen and S Note to hand write the information to help their understanding. The teacher launches educational applications on the students' devices to lead discussions. Using Lesson Toolbar, the teacher quickly accesses bookmarked content, and writes on

the web pages and applications in use to enhance the students' understanding. With the various immersive learning features, the teacher runs the classroom in a spontaneous and flexible way that increases interaction.

4. Encouraging collaboration

Group Discussion, Communication

A teacher assigns group collaboration work to the class. Then, the students work in groups and simultaneously write on the same screen to brainstorm. Group leaders assign sections of assignments to members, and compile the individual completed assignments using the Separable Canvas and Group Report features. When students have questions or opinions, they send them to the teacher's device through the Texting feature. The teacher responds to the questions or sends comments to the students using Texting.

5. Assessing students' understanding

Quiz & Poll

Teachers create quizzes to monitor and evaluate the students' degree of understanding and performance using a variety of quiz templates and question formulators. When creating the quizzes, teachers choose from short answer, true or false, or single and multiple choice questions. The data from the quizzes helps teachers assess the need for individual attention. Teachers take an instant poll during class to collect the students' opinions and ideas to better address the students' needs.

6. Providing access to learning materials

Content Management

After class, students check Public Library for lesson materials, and then download the content related to the class. They store the materials in local content libraries on their devices for fast and convenient use, and for the added benefit of continued learning at home. With access to an array of content, students review what they learned in the class, conduct self-directed learning in areas of interest and prepare for the next lesson.

Initial testing in actual classrooms showed that Samsung School increased school competitiveness and improved student concentration by 23 percent. Teacher productivity was improved by approximately 10 percent.¹

Student-centric learning for today's classroom.

Create an inspired new learning experience with the Samsung School solution

Educational institutions are always seeking new ways to enhance the learning experience. Activities such as providing critical personalized attention to students, managing classes, tracking students' progress, and planning lessons can be daunting for teachers. These tasks drive an increasing demand for digital technology within the education environment.

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 a major electronics manufacturer that has developed a total learning solution tailored specifically to the education environment. The Samsung School solution 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.²

With extensive expertise in developing tablets and related software as well as large display devices, Samsung has successfully implemented its school solution in more than 50 schools in South Korea.

The Samsung School technology keeps students engaged, fosters a positive learning experience and helps teachers provide personalized attention and improved classroom management.



Features and benefits

	Benefits
Screen Sharing	Teachers and students can share content with each other, providing dynamic interaction among all participants in the class.
Screen Monitoring	To enhance student learning and provide individual help more quickly, educators can remotely monitor students' progress and activities. Students' screens can be shared on large display devices for improved class participation and easier delivery of student presentations.
Student Device Control	Teachers can remotely lock students' applications, screens and input functionality. This capability improves learning by enabling teachers to keep students focused on assignments and maintain better control of the classroom.
Remote Launch	Educators can activate and connect to useful websites and applications on students' tablets to provide a wealth of classroom content and enhance the educational experience for students.
Lesson Toolbar	Easy access to Samsung School's interactive functionalities such as Screen Monitoring and Screen Sharing enables teachers to better engage students by utilizing various web content or educational applications that can be annotated for added flexibility.
Quiz & Poll	Teachers can easily design and administer creative quizzes and polls to better engage students. They can also quickly assess how well the class comprehends materials to help them optimize future lessons.
Group Collaboration	Classroom collaboration improves students' interpersonal skills and problem solving abilities by connecting students and teachers and enabling them to effectively interact with digital learning tools and resources.
Viewer	Students have an enriched learning experience with a wide range of easily available content.
Handwriting Capability	Teachers and students can take private notes on their devices using the included S Pen and S Note function. This appealing functionality enhances student engagement.
Course Administration	Course creation and modification can be managed with greater ease. Class participation is made simple with an intuitive UI.
Content Management	Teachers and students can store, share and utilize content more easily for a richer learning experience.
User Management	Teachers' and students' information can be centrally managed and teachers can track students' progress to improve their educational development.
Communication	Teachers and students can improve communication by corresponding digitally with the Texting and School Announcement features.

Solution system requirements

	Requirements	
Server for Class Management	HW	Varies according to number of concurrent users
	SW	O/S: Microsoft Windows Server 2008 R2, Windows 7, Virtual Machine Web Browser: Microsoft Internet Explorer 8, Internet Explorer 9 (Recommended) Prerequisites: Java™ 1.7 / Apache Tomcat™ 7 / PostgreSQL 9.1
Tablet Client (Mobile App)	Model: Galaxy Note 10.1 for teacher and student, Tab3 10.1 for only student OS: Android Jelly Bean	
PC Client (Windows S/W)	CPU: Intel Pentium Processor 1.8GHz (Intel Core 2 Duo 2.0 GHz or higher recommended) RAM: 1 GB or higher HDD: 500 MB of free space or higher O/S: Windows XP SP3, Windows Vista, Windows 7, Windows 8 Resolution: 1024 x 768 (600), 32 bit Prerequisites: Microsoft.NET Framework v4.0 Client Profile / Microsoft DirectX v9.0 or higher	
Wireless Network	Wireless AP: Enterprise-level, 802.11n, 5GHz, Channel Bonding (20 concurrent users per access point) <i>Note: Network quality may be affected by environmental conditions such as classroom space, arrangement, network device models, so it is recommended to get professional support for network setup.</i>	
File Formats (Contents Viewer)	Tab	Document Types: ppt, pptx, doc, docx, xls, xlsx, pdf, hwp, txt Image Types: jpg/jpeg, png, gif, bmp
	PC	Document Types: none (external applications needed) Image Types: jpg, png, gif, bmp
<i>Note: It is possible to save handwriting with types of pptx for documents and jpg for images in all the formats except for pdf and hwp</i>		
Large Display	- GALAXY Note 10.1 features wireless screen sharing for large displays using AllShare Cast dongle (HDMI supported) - Samsung School PC client enables interactive E-board input (HID USB interface supported)	

Solution system requirements

	Samsung GALAXY Note 10.1	Samsung GALAXY Tab3 10.1
Display	25.64 cm (10.1 in.) Wide Extended Graphics Array (WXGA)	25.64 (10.1 in.) Wide Extended Graphics Array (WXGA) (1280 x 800, 149 ppi) TFT
Processor	1.4 GHz quad-core	1.6 GHz dual-core
Memory	2 GB RAM	1.0GB RAM
Storage	16, 32, 64 GB + MicroSD	16, 32 GB + MicroSD (up to 64GB)
Front camera	1.9 MP FF (720 p HD recording)	1.3MP
Rear camera	5 MP AF with LED Flash (720 p HD recording)	3MP FF
Dimensions	262 mm x 180 mm x 8.9 mm (10.32 in. x 7.1 in. x 0.35 in.)	243.1mm x 176.1mm x 7.95 mm (0.09 in. x 6.93 in. x 0.31 in.)
Weight	600 g (1.32 lb)	512 g (0.01 lb)
Battery	7,000 mAh	6,800 mAh
OS version	Android™ 4.0 Ice Cream Sandwich and Jelly Bean (JB)	Android™ 4.2 Jelly Bean
Additional features	TouchWiz, Hubs, AllShare Cast, Wi-Fi channel bonding, Dropbox	Wi-Fi 802.11 a/b/g/n (2.4 & 5 GHz, Ch. bonding), Wi-Fi Direct, BT 4.0
Digital pen writing	S Pen embedded, Pen UX (S Note, S Planner) Adobe® Photoshop® Touch	

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1. The survey of Samsung Smart School pilot class in Gyeseong elementary school, Embrain, December, 2011.
2. IDC Government Insights, "The Next-Generation Classroom: Smart, Interactive and Connected Learning Environments." Document #AP779305V, a white paper sponsored by Samsung, October 2012.

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