

# Connecting Devices for Visual Learning in the Classroom

How to Easily Flow Content Around Classrooms with a Simple Display Solution



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## Executive Summary

The rapid pace of technological change has brought a major issue to the forefront of modern classrooms: the need to seamlessly connect a variety of student devices to share visual tools that facilitate learning. This is often a daunting prospect as districts experiment with new devices, 1:1 technology, and BYOD initiatives. Teaching styles are also changing, forcing technology teams to choose hardware and software that will enhance both teacher- and learner-centered lessons. The importance of visual learning in the modern world cannot be overstated, so finding solutions that allow teachers and students to seamlessly share visuals among various devices — all while maintaining classroom control and keeping lessons on pace — is crucial.

Epson empowers teachers by reimagining the projector as a hub of information in the classroom. Every day, more than 10 million students learn with Epson projectors. As a leader in educational display technology, with a central role in classrooms across the country, Epson now offers solutions to help manage the flow of content around the classroom. With new software that empowers teachers to see, share, and collaborate wirelessly across devices, Epson encourages administrators and technology teams to understand different teaching styles and the ways in which technology can solve problems and enhance learning.

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## Part I: The Problem

The rapid pace of change in educational technology leaves individual teachers to wrestle with three different issues. First, they must deal with changes in hardware and the equipment students bring into the classroom and make sure that everything works together — a difficult task for busy teachers, but one that can be accomplished by a savvy tech team with the right tools and software.

Second, teachers enter the digital world with different skills, needs, and tools. While some may excel at delivering lessons to a large group, others want or need to differentiate lessons for individuals or small groups. Different subject areas also require technology that helps students build collaboration, research, and presentation skills — and sometimes all three.

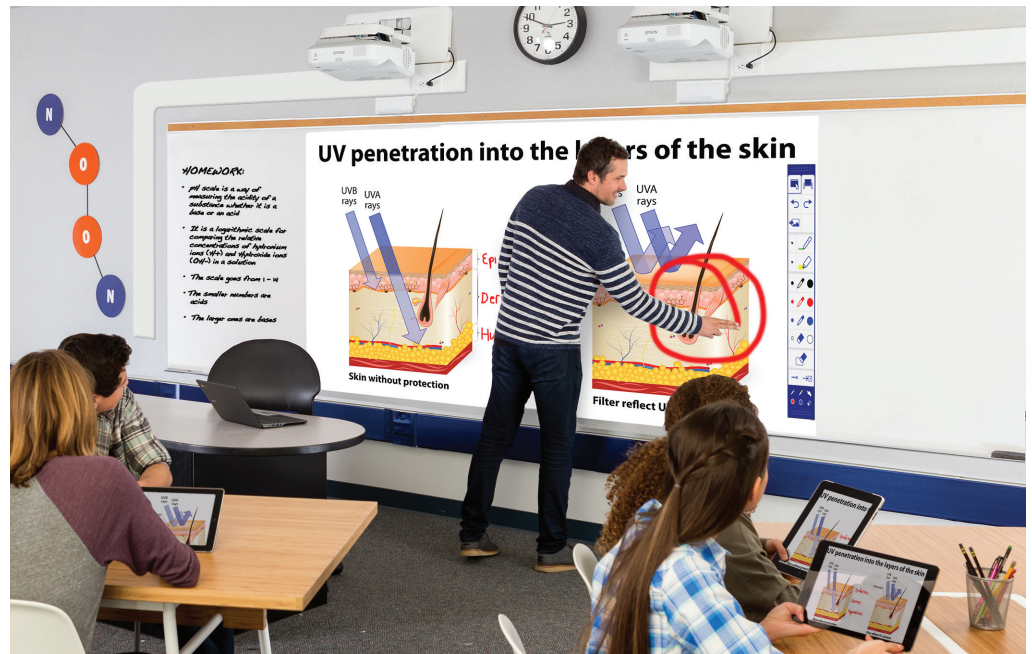
Finally, visual communication is no longer a “nice to have” feature in the K-12 classroom; instead, it’s a critical requirement. Because the world has shifted away from books and newspapers to image-heavy media like TV, texting with emojis, online blogs, and video, visual literacy is more important than ever before.<sup>1</sup> Now that the ability to interpret these visuals is part of several Common Core learning standards,<sup>2</sup> teachers must provide a steady stream of visuals that students can engage with to hone these 21st century skills.

So where are you now when it comes to classroom technology — and how do you get where your school needs to go?





*Technology doesn't exist in a vacuum, and you can't choose the right solution for your school until you understand both the capabilities of your education technology and the varied teaching styles your staff members employ in their daily work.*



## Part II: You Are Here: Where Technology Meets Teaching

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### ■ The Technology Landscape

In general, there are two ends of the spectrum when it comes to devices in classrooms: 1:1 technology provided by the school or a BYOD (bring your own device) model, in which students use their own smartphones or tablets. Apple has always been on the classroom computer scene,<sup>3</sup> and 1:1 devices became widely adopted with the release of the iPad in 2010.<sup>4</sup> Tablets promised interactivity and increased engagement with their easy-to-use apps and portability. Not long after, Chromebooks became a viable alternative and are now the device of choice due to their low acquisition cost and little to no maintenance for schools that wanted to provide a more traditional computing experience for less money than a set of traditional laptops.<sup>5</sup> Schools that can't afford a complete 1:1 device program often create portable labs with a class set of matching devices to be shared among teachers as needed.



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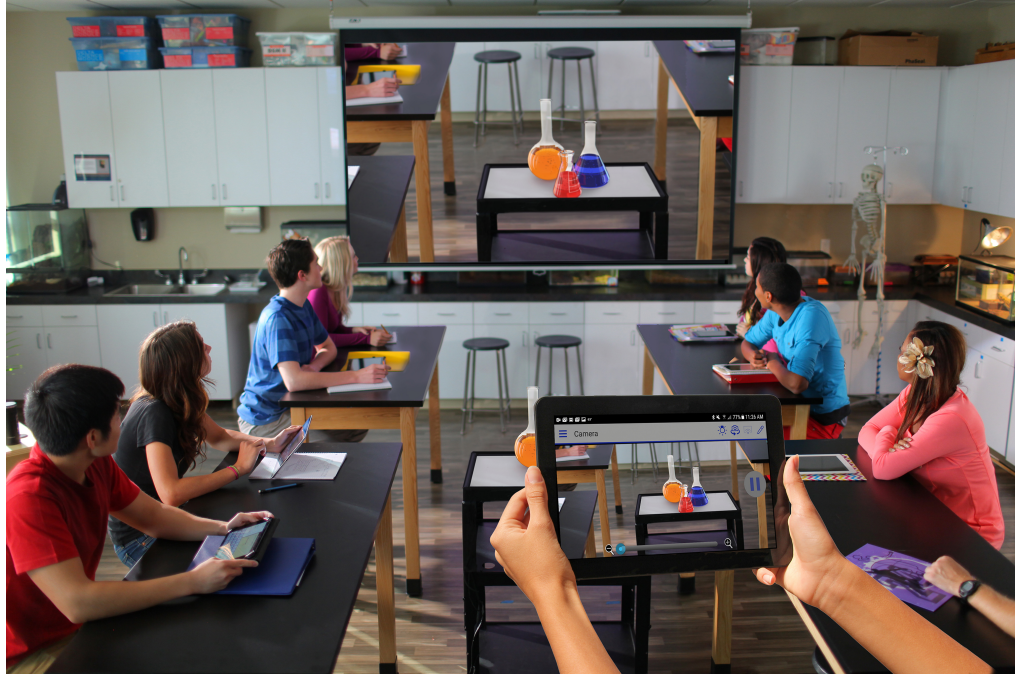
On the other end of the spectrum, some schools have begun to implement BYOD policies that allow or even encourage students to bring their own smartphones, laptops, and tablets from home. The number of schools allowing students to access its network is growing rapidly,<sup>6</sup> especially as districts look for ways to provide access to technology with budgets that still haven't bounced back from the Great Recession.<sup>7</sup> These students aren't merely comfortable with technology; they also have high expectations around a seamless interface between tech and their everyday lives. Teachers would like that, too, but may not have the time to learn how to connect a wide range of devices given the increased demands of their profession.

### **Challenges with 1:1 devices**

When students work on individual devices, it's harder to share what they're working on with others without everyone crowding around a single screen. ***Teachers need a way to display individual screens to the whole class.***

### **Challenges with BYOD**

In schools that allow students to use their own smartphones, teachers will have a wide range of devices in use at any given time. This makes communication and file sharing a challenge because not all operating systems are compatible. ***Teachers need a way to seamlessly push information to a wide range of devices and allow for sharing among different systems.***



With less control over the apps on individual devices, teachers are often forced to become gatekeepers that monitor students' internet usage. This is particularly difficult when 25 to 30 students are working independently. ***Teachers need a way to preview student content and monitor off-task behavior.***



***Classroom teachers need a way to provide visuals to the whole class by seamlessly linking web browsing to their display technology.***



### **The Takeaway**

Whether your school has a 1:1 device plan, a BYOB policy, or a hybrid program that maximizes your flexibility, classroom teachers need a way to provide visuals to the whole class by seamlessly linking web browsing to their display technology. This allows them to bring the world to their students and encourage them to decode and understand multiple forms of visual communication as they learn.

#### ▪ **The Teaching Landscape**

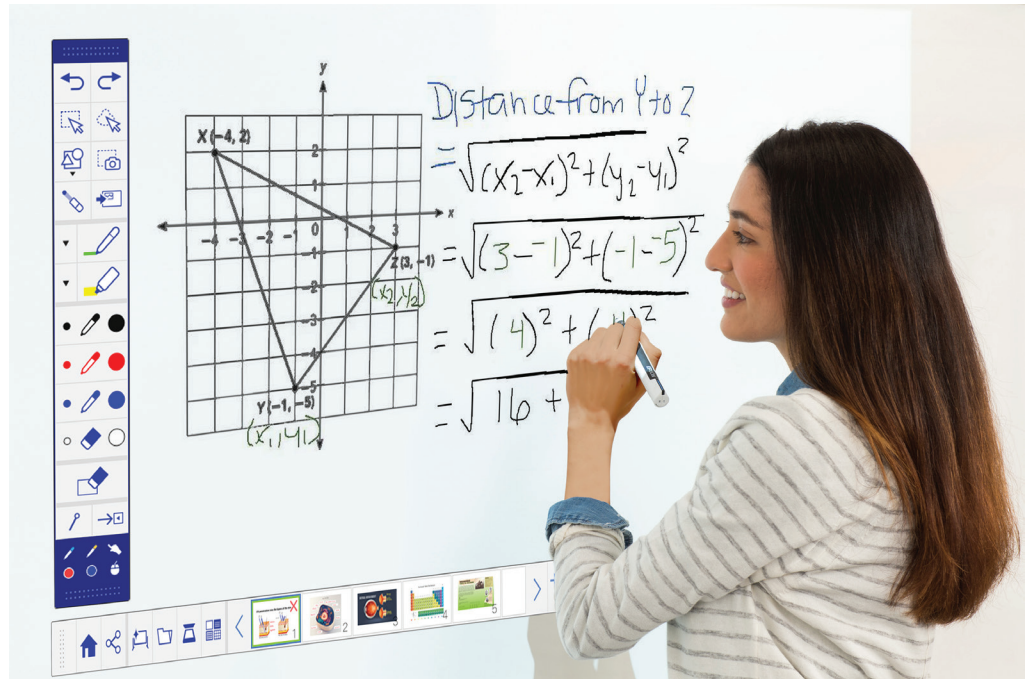
Just as there has been a revolution in the technology that allows teachers to bring images and information from around the world into the classroom, the way teachers deliver lessons has also changed. As students have been able to access more material online than ever before, teaching methods have evolved in part to deal with the sheer glut of information.



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In the past, teachers almost exclusively used a “sage on the stage” model, in which they were responsible for delivering information and teaching skills that students could not encounter on their own.<sup>8</sup> This method relies heavily on traditional lecture, but it also can incorporate the teacher’s role as the moderator of class discussion, the model of appropriate behavior and skills, and the knowledgeable expert in the room.

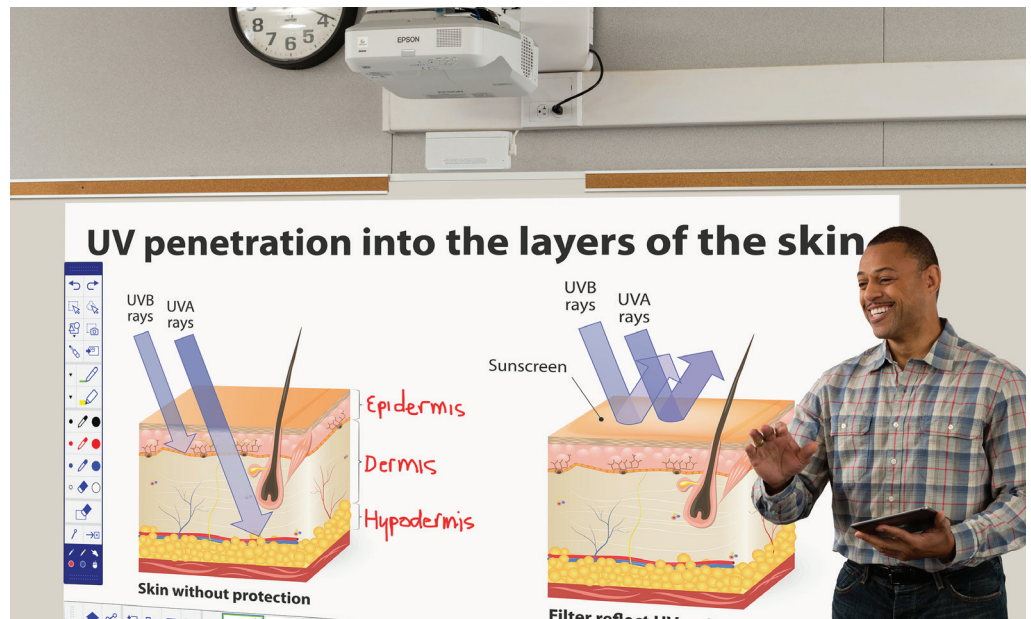
Concurrent with changes in classroom technology and the rise of the internet, K-12 pedagogy has embraced a “guide on the side” model of teaching that seeks to put the learner at the center of the process. In this model, the teacher is meant to be a facilitator that ushers students toward a deeper understanding of the material while allowing them to explore and practice on their own. The flipped classroom is perhaps the ultimate example of “guide on the side” teaching: In this model, students read new information on their own first, then bring questions to the teacher for help and practice as needed.<sup>9</sup>

Because teaching is so highly personal, individual instructors may have a preferred style that falls into one of these camps, or they could use a blend of “sage on the stage” and “guide on the side” teaching in their lessons. Each mode intersects with technology in a different way and gives rise to different challenges in the classroom.

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### Challenges with Mobility

“Sage on the stage” teachers who prefer to deliver important information to the class as a whole rely on whiteboards and projectors to display important information where everyone can see it. In the past this has meant staying at the chalkboard to write notes. To make the most of all the internet has to offer, however, ***teachers need a way to seamlessly link web browsing to their display technology while they move freely about the classroom.***

Students today are accustomed to finding and sharing information quickly on their own. They have also been raised to multitask, expect learning to be entertaining, and enjoy the freedom of using a device on their own. ***Teachers working in the front of the classroom need to find ways to keep digital natives engaged and on-task while checking their understanding.***

### Challenges with Differentiation and Personalization

“Guide on the side” teachers who are comfortable allowing students to do their own research and practice during class time often have trouble tracking student participation and progress, especially in large classes. ***Teachers need a way to make sure students are staying on task during collaborative group work.***



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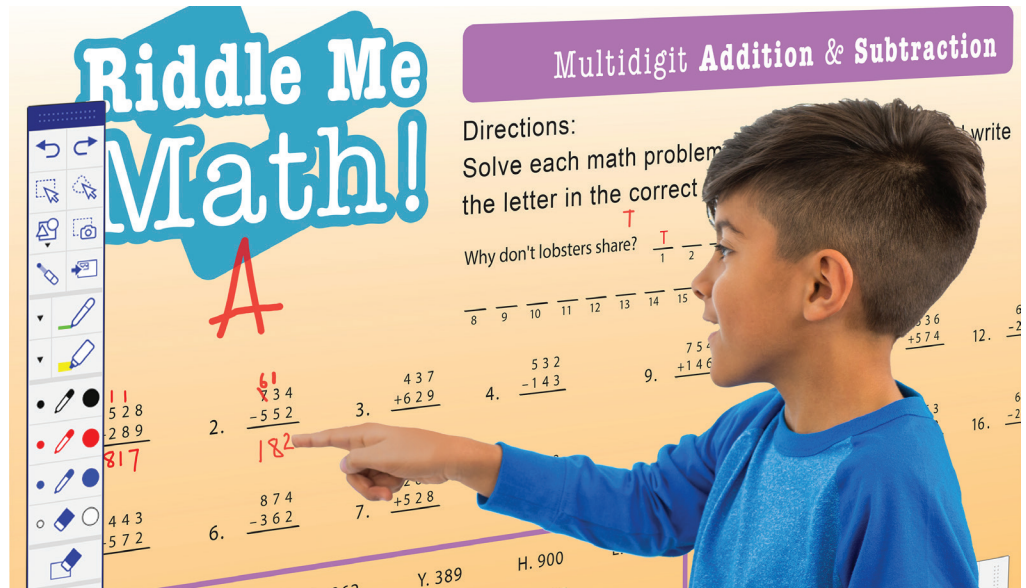
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Differentiating lessons to meet individual needs often means that many different things are happening in the classroom at once. In some cases, students are responsible for teaching each other important themes or reporting their findings. ***Teachers need a way for students to share and present individual work to the whole class without disrupting the flow of the lesson or individual pacing.***

#### **The Takeaway**

Teachers bring a wide range of skills to the classroom, and their needs vary based on their unique teaching styles. For this reason, the best technological solutions will allow teachers not only to display visuals to the whole class but also to push displays to individual devices to differentiate learning and personalize the classroom for learners of all levels. Technology should also free teachers to move around the room to address students in small groups or one on one to meet everyone's needs.





*Classroom projectors have always been a favored solution for teachers who want to capture the attention and imagination of the whole class by sharing bright, colorful materials on a large screen at the front of the room for all to see.*



## Part III: The Solution

At Epson, we've been listening to the frustrations of teachers about classroom technology, and we've responded by reimagining the projector. Classroom projectors have always been a favored solution for teachers who want to capture the attention and imagination of the whole class by sharing bright, colorful materials on a large screen at the front of the room for all to see. We've expanded this popular solution's agility by turning that projector into a connected intelligence hub for all the devices in a classroom.

As the leader in building display tools specifically for education, Epson's role in the 21st century is to empower seeing, sharing, and collaboration in classrooms by offering a seamless experience across devices and teaching styles. Imagine a teacher being able to:

- Manage projector images from anywhere in the classroom by turning a personal smartphone into a remote control
- Connect a computer or a smartphone to the projector to easily access images and webpages to share with the class
- Push content directly to students' devices so they have all the information they need to work on their own time and terms, no matter what type of smartphone, tablet, or Chromebook they're using



- Connect a whole classroom's worth of devices so students can share their work with each other on a large screen — without leaving their seats
- Annotate images from one device and have notes appear on the big screen for all to see
- Preview students' screens when they're working independently or in small groups
- Select work from individual student screens to share or compare with the whole class

To make all of this possible, we created a way for individual devices, from iPads and Chromebooks to tables and individual smartphones, to “shake hands” with each other through Epson projectors, which can operate as collaboration hubs for classrooms.

#### ▪ **iProjection**

An easy-to-use app for your mobile devices, Epson iProjection is a wireless display solution designed for today's BYOD classrooms. Offering multiplatform support, it enables you to wirelessly project from Chromebook, PC, macOS®, iOS®, and Android™ devices. Teachers will appreciate that it supports a fully mirrored display of all Chromebook content, including Google Docs, Slides, and Sheets, as well as Chrome browser web content. Some Epson projectors also allow users to push content from the projector to connected devices.

With its built-in Moderator function, iProjection allows up to 50 users to connect to a projector simultaneously, sharing content from as many as four users a time. It's the perfect tool for displaying, managing, and annotating photos, documents, and other classroom content — or for comparing work side by side.



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*The best part? The iProjection app is free and available to download today at [epson.com/iprojection](https://epson.com/iprojection).*



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It takes only three simple steps to start using iProjection to share teacher and student content:

1. Connect your mobile device to the projector's network.
2. Launch the app and select the connected projector.
3. Project: Select the web page, document, or photo you'd like to project, and you're ready to go.

#### ■ **Technical Requirements**

To make iProjection work, technology specialists will need to make sure each projector has been enabled to work with iProjection software:

1. The projector must be compatible with Epson iProjection software. Confirm by checking the instruction manual of your classroom projector or by visiting <https://epson.com/wireless-projector-app> to see compatible projectors.
2. Some older projector models that have compatibility with Easy MP Multi PC Projection with Moderator Software may also be able to provide this functionality. Please see your instruction manual for more details.
3. Connectivity to a Local Area Network is also required to allow features of Epson iProjection software. Please ensure your projector, as well as remote devices with the app installed, are available to be connected via a shared network





## Part IV: Visual Learning Made Easier

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*The solutions you're looking for to make information flow between you and your students — and all the devices in between — could be at your fingertips.*

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The solutions you're looking for to make information flow between teachers and students — and all the devices in between — could be at your fingertips. Epson projectors already have a home in many classrooms, so you could be just a simple download away from getting the most out of your school's and students' hardware, whether the devices all match or are a patchwork of brands and operating systems. Once these devices are talking to each other through a projector and the iProjector app, teachers are free to make the most of their preferred teaching style — or to experiment with bold new ways for engaging students through technology.

If your school already has Epson projectors, they may already be able to do what you and your teachers are imagining.

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3840 Kilroy Airport Way, Long Beach, CA 90806