

Introduction

This guide covers how your school can incorporate computers effectively even with limited or no access to Internet.

Using computers at your school can be a great benefit to the way your school is run, the way your teachers plan lessons and the way your students learn. Whether you have access to consistent Internet or not, you can take advantage of the power of computers to improve the quality of administration and instruction in your school. But it's important that you have a plan for how exactly you'll integrate computers into your school.

This guide will walk you through just how to develop this plan and train your teachers and other school leaders to implement it.

Benefits for students

There are clear benefits for using computers with students and is most likely your motivation for wanting to bring computers to your school or develop a plan for how to use them more effectively.

21st Century Skills

In the 21st century, it is vital that students around the world have computer technology skills to compete for jobs and college admissions. Your students will have many more higher-paying job options if they're able to type, use word processing and presentation software, and navigate the Internet to complete tasks.

Colleges will also expect that students have these skills as first-year students and will expect that applicants can type their applications and submit them online. Preparing your students for

this world by incorporating computer skills into their classroom lessons with give them an advantage in their future academic and professional careers.

Academic Independence and Discovery

Computers also teach students to explore and discover as they learn. Given the right access to information (even offline), students can use computers to enhance their learning as they become independent learners who know how to think critically and find the resources they need to answer questions about the world around them.

In my own classroom, I've often assigned students tasks that pushed them to answer questions about a concept beyond our classroom lesson. For example, I might ask them to determine the greatest advance in technology in the last 20 years and explain their choice with evidence from research. In class, we likely only covered a few great inventions, so students are forced to learn more about other critical inventions (from a list of suggestions I've given, especially for younger students) and then to think critically about what they learn in order to make an evidence-based decision about what is the greatest technological advance in the last 20 years. As a teacher, it is an incredible experience to see my students working together as they dive into articles and videos to learn more about the world, and then to listen as they excitedly present their findings to one another.

This experience (and others like it) shows students the excitement of learning by discovery and how they can use resources on the computer to answer questions of all kinds.

Key Skills

The skills your students need to master are:

- Basic computer skills
 - Parts of the computer
 - Using the keyboard
 - Using the mouse
 - Basic typing
- Educational games and applications

- Whether you have access to the Internet or not, there are lots of educational games that can make learning more fun and engaging for your students. E.g. Edubuntu
- Students will need to learn:
 - How to find games
 - How to open and close games
 - How to play age-appropriate games
- Internet skills
 - If you have limited or no access to the Internet at your school, it is possible to gain access to tools like offline versions of tools like Khan Academy (academic video library designed for students) and Wikipedia (encyclopedia).
 - If you have access to the Internet, your students should learn these skills:
 - Searching online for helpful resources
 - Managing email
 - Staying safe online
- Word Processing
 - Creating a new document
 - Editing and formatting the document
 - Saving a document and creating organized folders
- Presentations
 - Creating a new presentation
 - Editing and formatting the presentation
 - Presenting the presentation
 - Saving the presentation

Benefits for teachers

As a teacher myself, I have benefited greatly from using technology not only in my lessons with students but also in the way that I plan my lessons and organize my classroom.

Organized curriculum

In planning lessons, there are so many things to remember and organize for each part of what will happen in class each day. To keep all of this organized, I maintain documents for each day's lesson plan, so that the following day, week, year, I can revisit that lesson plan and

modify the plan. I can also send the plan to other teachers or to administrators for advice and feedback.

Furthermore, I utilize folders to organize the lesson plans by unit so that I can also keep the lesson plans together with the associated tests (and the answer keys), handouts, homework assignments, and any other useful resources (e.g. maps, pictures, videos) that I've used over the years in that curriculum unit. So, in the future, when another teacher wants to know what students are learning in my class, whether to prepare younger students or know where to start the year with older students, I can much more easily share all of my documents with them on a thumb/flash/USB drive or by email.

Maintenance of class records

With technology, I can also more easily maintain class records like attendance, student grades/marks, and letters to parents. With all of these records saved in documents on my computer, I can look for patterns in student performance from week to week and from year to year.

I can more easily answer questions like,

- How did this year's class do on this test compared to last year's test?
- How often is Michael late on Fridays?
- How many letters have I written to Amy's parents?
- What information did I share with parents last year at Open House?
- How many missing assignments did John have last month?

And I can answer these questions without having to flip through binders and binders of paper. Instead, I can quickly look through documents on the computer that if necessary, I can share with parents and administrators for important conversations.

Improved lesson prep

Technology also allows me to research more about what I'll be teaching to make sure I understand as much as I can before I present new content to students. For the most part as teachers, we know our content quite well from years of studying and teaching the material, but there are always a few topics that, each year, we need to go back and review. Using online videos, encyclopedias, articles and tutorials has been so helpful in lesson planning because I was able to answer questions about the content and also get great ideas from other teachers on how to present material.

Khan Academy (KA) is a great lesson planning tool because you're able to see how the instructor in the video explains the concept to viewers. All the videos in the KA library were designed for a broad audience so they use at least 2, if not 3 or 4, different methods for explaining the concept in order to ensure that as many viewers as possible understand the material. They also keep the video length to less than 10 minutes so that viewers don't get distracted and miss key points. This approach is similar to what teachers do in their classroom - trying to reach students who learn in different ways without boring them. By watching a KA video as part of your lesson prep, you can (1) get new videos for how to teach a concept, or (2) feel validated in seeing the videos teach a concept in a way similar to the way that you teach it.

Here's a Khan Academy video on addition as an example: [Click Here](#)

Key Skills

Specifically, here are the skills your teachers need to master. They are similar to the skills students need with some differences.

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