

Basic Technology Competencies

What should every teacher be able to do with the latest digital technologies?

This document describes the general and personal skills with the computers, networks, and other devices that are changing the way our culture deals with information. The list includes the generic technical skills the teacher should be able to apply to the day-to-day tasks that are common to all professions, as well as the technology skills peculiar to the profession of teaching.

The competencies in this list are drawn from an analysis of teacher technology competencies that have been listed by organizations such as the International Society for Technology in Education and state certification offices, as well as from the reports of more than a thousand practicing teachers who participated in the Teacher Technology Profile during the past year. The competencies are organized into five aspects: productivity, communication, research, media and presentation.

Productivity

The competent teacher can...

- *Produce and manage learning documents.* This includes composing standard educational publications such as parent newsletters and handouts for students and class lists; it also includes teaching students how to prepare their own documents on a computer so that they are readable and useful.
- *Analyze quantitative data.* This includes administrative work such as putting student test scores into a spreadsheet and analyzing them, as well as preparing curriculum materials with digital tables and graphs of curriculum content, and for some teachers recording measurements from science experiments directly into the computer.
- *Organize information graphically.* He or she can use specialized graphic organizer programs, as well as general tools such as word processors or presentation programs, to create digital representations of educational information. And includes these tasks regularly in assignments for students.

Research

The competent teacher can...

- *Use effective online search strategies.* In their professional preparation, as well as in their classroom assignments, the teacher chooses the most appropriate research tools and databases, and applies the most effective search techniques, to produce useful and safe online resources in the classroom.
- *Evaluate and compare online information and sources.* Once located, the teacher knows the difference between authoritative and untrustworthy sources, how to ascertain authorship, and how to find sources with different points of view. And can teach these skills to students.
- *Save and cite online information and sources.* The teacher knows a variety of methods for bookmarking and saving valuable online resources so that may easily be found later and employed in learning materials. And can use accepted protocols for citing online sources, and teaches these to students.

Communication

The competent teacher can...

- *Communicate using digital tools.* These include email, instant messaging, mobile phones, and text messaging for communicating with students, parents, and

colleagues, and knowing how to organize and manage these tools in the classroom so that they can be used for learning.

- *Collaborate online for learning.* Takes advantage of the tools listed above plus blogs, wikis, chats, audio and videoconferencing to bring outside resources into the classroom and to encourage academic collaboration among students.
- *Publish learning resources online.* From a simple teacher's web site to a complex curriculum wiki to the online posting of student projects, to podcasting, the teacher has mastered an array of tools and techniques for publishing learning materials online.

Media

The competent teacher can...

- *Differentiate instruction with digital media.* This includes an awareness of assistive technologies for disabled students as well as an ability to use a computer to prepare and present academic ideas in a variety of forms for better learning by all students.
- *Capture and edit images, audio, and video.* The teacher can use digital still and video cameras, edit their output on a computer, and produce learning materials that range from simple slide shows to the archiving of student presentations and performances.
- *Produce digital multimedia educational experiences.* The teacher can combine media from a wide array of sources into a useful presentation of academic content, and can teach this skill to students.

Presentation

The competent teacher can...

- *Create effective digital presentations.* Using common tools for preparing slide shows, videos, and podcasts, the teacher can create presentations that follow the principles of communication, and can apply these design principles to the evaluation of students' digital work.
- *Deliver digital multimedia presentations.* Using common devices such as computers, projectors, and screens, the teacher can set up classroom presentations, deliver them comfortably and effectively, and arrange for students to do the same.
- *Employ new media devices for learning.* From large SmartBoards to tiny iPods to science probes, the teacher can incorporate a variety of digital devices into the instruction in the classroom, and use them to extend learning opportunities for students outside of school.

Those are the skills that just about every teacher needs, no matter the subject or grade. Beyond these are the more specific technical skills required of a high school math teacher or a teacher of visually-impaired students, competencies that would be embedded into specialized courses and programs.