

# Teaching “High-Tech” by using “Low-Tech”

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## Abstract

When introducing a unit about technology, we began by discussing examples of items representing technology. Across multiple classes in grade levels K-5, someone would invariably bring up the *iPad*. This led to two questions posed to the students:

- (1) **What is this used for? What problems can this item solve?**
- (2) **What did we do before this was invented/developed?**

In the case of the iPad, the answers generally included:

- (1) To “Google” things/look up information
- (2) We used the *computer* before the iPad.

In continuing this line of questioning, we then asked what we did before the invention of the computer, or what we would have done had a computer not been available. Where did we look up information before computers were widely available (and before the Internet)?

Students eventually concluded that people looked up information in **books** before computers, and they would learn that books were, in fact, the product of significant advances in the technology of their time.

To demonstrate the advancement of technology, they were first shown a video of how manuscripts were made (including parchment, quills, illuminations, and hand binding volumes). They observed that these volumes were one-of-a-kind and to make additional volumes of the same book, they needed to be painstakingly copied by hand.

The next two major technological developments discussed in this sequence were papermaking and the moveable type printing press. In our class, papermaking was not discussed in detail due to space and time limitations, but papermaking does provide an ideal opportunity for hands-on exploration in the classroom. Our classes focused on learning about moveable type printing. A StoryBots video about Gutenberg was shown to students to introduce the concept of the printing press. An additional video demonstrating the process of setting type, printing books and then hand binding the volumes was shown to the students to provide an appreciation of the process that was used to make books.

Students were given an opportunity to simulate “setting type” themselves by taking alphabet stampers and setting the stampers (the “type”) themselves. They set type for their name, (the stampers were set face up the way it would be oriented on the printing press) and then ink was applied to the type. They placed an index card on the set type, applied gentle pressure to the type, and then removed the card, revealing their name. At this point, some students noted that their name printed backward, and thus learned that the process of typesetting required the type to be set in reverse order from the direction that we would be reading the printed type.

The next technology advancement introduced after the printing press was the manual typewriter. Students observed that individual letters on the type bars moved separately, mechanically controlled by the keys, and this enabled people to create typed letters without using a printing press. The typewriter also provides an ideal opportunity to demonstrate multiple varieties of Simple Machines. Many also students remarked on the typewriter keyboard and its similarity to a computer keyboard, at which point I told them the computer keyboard actually evolved from the typewriter, demonstrating the progression of technology, and how “low-tech” can be used to teach “hi-tech.”