

Pīkahu Name: What is Programming?

Video Name: Why this matters (EMP07-2)

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Any software that you are using, in fact any app or application that you are using, is a computer program that someone has written. Even small gadgets that are digital will be running some kind of computer program that's been written by someone, or, in fact more likely, a team of people. That means if you want to do something innovative, then it's the computer program that's going to bring dead hardware to life. You can invent a new gadget, but you need to write a program for it so that it starts making it do things that you actually want to do. That's why learning to program is such a general skill. It's a bit like teaching your students to read. You don't know exactly what things they'll need to read, but you do know that it's a skill that's going to serve them well in all kinds of situations.

Here are some examples of things that have been written by programmers, or, of course, more likely, by whole teams of programmers. A word processor is a program that reads in typing and mouse clicks and displays it as images on the screen and things that you can print on paper. A picture editing program applies your commands to pixels to change their colour. Video editing software manipulates the data in video files. A web browser is a program that sends requests out to the internet for you and displays the results that come back. Every app on a mobile device is a program. Some devices, like this audio recorder, run a dedicated program that monitors inputs and responds accordingly. Most digital devices like this have a dedicated program running that make them work. That could include a burglar alarm, a robot vacuum cleaner, a photocopier, or even a digital TV. Software, like this online map, is actually a whole lot of programs working together. There's one that's running in the web browser to display the maps that you want to look at, but that's also sending requests back to the servers that are going to look up locations and maps for you, and if you are searching for a location, there will be another program that's trying to match the location you are searching for with known locations. Of course, the web browser itself that is displaying this map is another program, so it's a whole lot of programs that have to work together. Even a device like bluetooth headphones have a computer program in them that's receiving the bluetooth signal, making sense of it, and converting it into something that you can listen to.

And so it goes on. If it's digital, chances are that there's a computer program somewhere that's bringing the device to life. Students are using the devices all the time, but they probably aren't even aware of how many different computer programs they are using, let alone the people who wrote those computer programs. They are often embedded in systems, and of course, the original program, that's the property of the company that wrote it and they don't necessarily want to share that with the world anyway.

So these things are happening all around us but they might not be obvious. But suffice to say the ability to write a program is an incredibly powerful skill and it will be very useful to students in their lives. Because programs can be used in so many contexts, it's a skill that students could apply to all sorts of areas of the curriculum and in all sorts of areas that they're interested.