Coding's Cool!

What is coding? Giving instructions to a computer to do something useful or interesting.

Who can code? Anyone with a computer or mobile device and internet access! There are so many learning & teaching resources available online now.

How do I get my student started? First,you're going to have to make time for it. In software engineering, one of our core principles is continuous learning - we spend lots of time learning new things in addition to practicing things we already know. Here are some resources for you to use with your student (and yourself) at home:

Hour of Code is designed to help beginners get started programming online

- Start your Hour of Code at https://code.org/
- Khan Academy - https://www.khanacademy.org/hourofcode
- Hour of Code in Python - https://hourofpython.com/
- Hour of Code apps for mobile devices, Lightbot or Hopscotch or Tynker
- Or, search for Hour of Code online or in your app store

Scratch is a visual programming language for kids - you can do it online or download it to install on your Windows or Linux PC or on your Mac

- https://scratch.mit.edu/ - Scratch 2.0 online requires creating an account
- https://scratch.mit.edu/scratch2download/ - Scratch 2.0 offline editor
- https://scratch.mit.edu/scratch_1.4/ - Scratch 1.4 installs locally
- There are many, many examples online
- You can also by tutorial books like *Coding Games in Scratch*

Turtle is an old teaching tool that is still relevant and fun - try learning to type Logo commands at https://turtleacademy.com//index/en to control the 2D turtle online or using interactive Python online following this ebook chapter http://interactivepython.org/runestone/static/thinkcspy/PythonTurtle/toctree.html

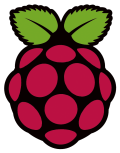
Python is an easy-to-learn language that is powerful enough for professionals' daily use - many schools now use Python as their introductory language

- Download 2.7 or 3.6 here: https://www.python.org/downloads/
- It does not matter which version you use, but they are a little different, so make sure to check any examples you follow for compatibility

When you start doing text-based coding, you really need to type well - find a practice program! It will make a huge difference. Mavis Beacon is a classic example, but there are many other free and paid sites & programs available.

Taking It Further

What is Raspberry Pi? It's a small, inexpensive Linux computer that was designed to be affordable for classroom & educational use. It's powerful enough to serve as a basic home computer, especially for an elementary school student.



What can you do with Raspberry Pi? Just about anything a computer can do:

- Programming with Scratch, Python, Basic, Javascript, C/C++, Java, etc.
- Minecraft Pi, Mathematica, Sonic Pi and other educational applications
- Browse the web using Chrome & Firefox and other browsers
- Edit documents using Google Drive or other online editing tools
- Google it! There are hundreds of project ideas for kids.

What do you need to get started with Raspberry Pi? About $100 will get the whole computer:

- Raspberry Pi 3 Model B (others models are available, but this is the most powerful)
- A fast SD card, a power supply, and a case
- All can be purchased on Amazon as a Raspberry Pi starter kit for around $70
- A USB keyboard and mouse - you can get a wireless keyboard & mouse for about $20
- An HDMI cable, for connecting to a TV or computer monitor (sound plays over TV speakers)
- The ability to follow instructions - this is a built-your-own computer project

Is the Raspberry Pi a replacement for a home computer? No, not completely, but it's a great tool for teaching students about electronics and about software development (aka coding). And, it's nice to have a development computer separate from your main computer - if something gets messed up, just erase it and start over! And, since all of the software is open source, all future software upgrades are free!

Want even more hands-on coding projects? If you can afford it, try robotics using LEGO Mindstorms EV3 ($349 retail) or LEGO Mindstorms NXT. Not only is the coding easy for kids to do, but you can see your results live in the real world! If doing that really gets you excited, considering joining Horizon's LEGO Robotics team in future years.

See why we say that Coding is Cool?

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https://github.com/JayAllison/elementary-examples - *source code from today's discussion*