

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!

How do I get started? Here are some resources for home:



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

- 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 an online account but does not require installing any software
- <https://scratch.mit.edu/scratch2download/> - Scratch 2.0 offline editor for download to install locally
- 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 commands to control the 2D turtle online at

<https://turtleacademy.com//index/en>



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

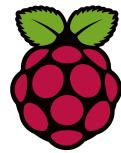
- Download 2.7 or 3.6 here: <https://www.python.org/downloads/>
- It does not matter which version you use, but they are a little different, so make sure to check any examples you follow for compatibility



When you start doing text-based coding, you really need to type well - find a practice program! It will make a huge difference.

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.

See why we say that Coding is Cool?

Jay Allison - jonesephraim@gmail.com - *Questions? Contact me - I'll be happy to help...*
<https://github.com/JayAllison/elementary-examples> - *source code from today's discussion*