



Climate Change and the Power of Programming: Worksheet

Here are some activities based on the video lecture for you to have a go at. I particularly encourage you to write some of your own code; this is the best way to learn new things and discover new interests!

1. Have a browse of [this site](#) containing data on all things climate and beyond. See if you can find three visualisations with climate-related data that you've never thought about.
2. Try and get the [Python climate model used in the lecture](#) up and running or alternatively, implement a climate model that uses the energy balance model yourself.
3. Once you've got the climate model running, you'll see it's not the most aesthetically pleasing. If you enjoy making nice GUIs, then use your UI/UX skills to improve the display of the program (hint: Python has other libraries that use more customisable UI widgets, have a Google and see if you can find them). A nicer display would have:
 - Information presented more clearly.
 - Prettier and more responsive UI elements.
 - Some more validation.
4. If you're more interested in "pure" programming, add some helpful new features to the program, so that a friend or family member could easily explore how the climate model works. For example, you could save graphs with different parameter values so that someone could investigate the effect of a rising albedo on average temperature.
5. Make your own mini-project to improve the sustainability of your household using a Raspberry Pi/BBC micro:bit. If you don't own either of these, you can [prototype a Raspberry Pi Pico online](#). If you're stuck for ideas, the [Raspberry Pi Foundation's projects](#) page might provide you with some inspiration.