MCU Programming Additional Project Setup

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1. Additional programming files added to the compile path:
   1. Add additional directories under   
      *Project Properties -> Toolchain -> ARM/GNU C Compiler -> Directories*
2. Floating point input and output support:
   1. Add “printf=iprintf” and “scanf=iscanf” in   
      *Project Properties -> Toolchain -> ARM/GNU C Compiler -> Symbols -> Defined Symbols (-D)*
   2. Add “-u \_printf\_float” in   
      *Project Properties -> Toolchain -> ARM/GNU Linker -> Miscellaneous -> Other objects*
   3. Note that printf and scanf are using the embedded debugger connected over USART1
3. Set CMSIS Pack to slightly older version to support math.h
   1. Select version 5.3.0 in   
      *Project Properties -> Packs*
4. Add libraries and library path
   1. Add “libarm\_cortexM7l\_math.a” to   
      *Project Properties -> Toolchain -> ARM/GNU Linker -> Libraries -> Libraries*
   2. Add “../../Lib” to   
      *Project Properties -> Toolchain -> ARM/GNU Linker -> Libraries -> Library search path*
5. When choosing a math library there are a few important things
   1. M7 - the core architecture
   2. l - small edian. Idk what this is but we get errors otherwise
   3. if using the compiler and linker flag -mfloat-abi=hard we need the "fsp" version as that is hardware accelerated. "s" refers to single precision
   4. we are currently using the -mfloat-abi=softfp flag that is a hybrid between hardware acceleration and software implementatiton. This allows the compiler to choose the best implementation for the task which is beneficial. This works with the library that is not optimised specifically for hardware acceleration i.e. the libarm\_cortexM7l\_math.a