# Coding Curriculum – Overview of Design Specifications

Below are a number of factors considered in designing and implementing our project. Each factor has been justified appropriately.

1. **Age range** – we are targeting candidates sitting their GCSE examinations, such as yourselves, i.e. age range 14-16. This is because:
   1. Your age range is more suited to our chosen programming language (C), which is a little more complex than some more beginner-friendly languages such as Python.
   2. Learning about Computer Science at this age may inspire you to take an A-Level in the subject, and possibly consider a degree or even a career in Computer Science.
2. **Language being taught** – we are teaching the C programming language. This is because:
   1. C has a large number of practical applications and can be used as a springboard for you learners to make their own projects. Other languages e.g. HTML (which isn’t strictly a programming language), generally need supports like CSS in order to work well. C is “standalone” in that sense.
   2. C provides a nice introduction to procedural programming.
3. **STEM theme** – our chosen STEM theme is mathematics. We want to teach you how to program in a mathematics context; i.e. with an end goal of making an application that helps people with mathematics.
4. **Description of learning experience:**
   1. We have made a number of different calculators that provide various functions. We want you to progress through the structured lessons and gain a solid grounding in C.
   2. This includes ideas like the various loops (while, if, for), variables, basic data structures, functions, libraries and so on.
   3. As you progress through the lessons, you will eventually end up building a calculator just like the one provided by us, with the same functionality. This will test and consolidate what you have learnt.