Computer Science 20-30 Programming Languages

The choice of programming language for Computer Science 20 and 30 is left to individual teachers who are best situated to make the decision based on their experience, the technology and technical support available in their school and division, as well as the language most appropriate for learning. Some consideration should be given to choosing languages that are platform independent and allow flexibility for students to work at home.

In order to facilitate student learning with a focus on problem solving and computational thinking as opposed to language syntax, the choice of programming language should take into consideration the learning curve of a given language where some environments may breed student frustration due to language design choices that solve a problem that the student will never encounter. Strongly and loosely typed languages are an example of this: a loosely typed language may generate less frustration for the beginning programmer.

Teachers may choose to change programming language from CS20 to CS30, although the change is not required. When choosing a language that will serve for both courses, it is important that the language not be a constraint for the content in CS30, for example object oriented programming (OOP).

Suggested Languages for CS 20	**Suggested Languages for CS 30**
- Python - Java - PHP - JavaScript - Visual Basic	- Python - Java - Processing - PHP

One of the key objectives of Computer Science 20 is to promote interest in the field of computer science and to that end, it is useful for teachers to get kids started coding as soon as possible. For that purpose, a visual programming environment can be very useful to simplify the syntax of programming in order to focus on algorithm design and problem solving. While a visual programming environment is useful as an introduction, it should not be used as the core language in CS20.

Suggested Visual Programming Environment for CS 20
- Blockly
- Scratch

A useful transition between a visual programming environment and a traditional language can be a constrained language, such as a modern adaptation of Karel the Robot built using the language you will be using for the rest of the course.