Fairfax Collegiate

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Game Programming 7-9 Syllabus

Course Goals

1 Programming Basics
Students are introduced to basic programming tools and techniques and learn to use them to solve problems and create software.

2 Game Development
Students learn to develop their own games using the BlitzBasic programming language, a language designed to make game design simpler. Students learn basic principles of game design and make several of their own games throughout the course.

Course Topics

1 Variables and Data
Students learn about the various tools BlitzBasic provides to store and manipulate data.

1.1 Variables
Students use variables in their programs to store data and reference it later. Examples include storing user input and keeping track of a player's score.

1.1.1 Special Type Variables
Students learn about the different types of basic variables, which include integers, strings, and decimals.

1.2 Arrays
Students expand their existing programs using arrays, which allow them to organize and easily alter data for multiple objects in their games.

1.3 Random Numbers
Students use random numbers to create dynamic experiences in their programs, allowing their code to change each time it's run.

2 Control Structure and Loops
Students learn to alter the control flow of their programs using conditional statements and loops.

2.1 "If-Else" Statements
Students create branching paths in their programs using if-statements to make their programs respond to more possible situations.

2.2 While Loops
Students work with while loops to repeat certain actions in their programs until a condition is broken. Students primarily use while loops to repeatedly draw the content of their games.

2.3 For Loops
Students use for loops to repeat sections of their code a specific number of times.

3 Graphics
Students learn how to use the graphics libraries in BlitzBasic to design their first games.

3.1 Drawing Images
Students create their own images and characters and learn to load them into their games.

3.2 Collisions
Students add collisions to their games to allow objects to interact with each other. Students learn how objects are represented on the screen and how to determine when two objects have collided.

3.3 User Input
Students learn how to take control of the characters in their games through use of the keyboard and mouse, allowing them to move their images themselves, instead of having the program do it.

3.4 Game Physics
Students receive a brief introduction to concepts like velocity, acceleration, and rotational acceleration in order to make the objects in their games, such as a ball, move faster when it hits an object.

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